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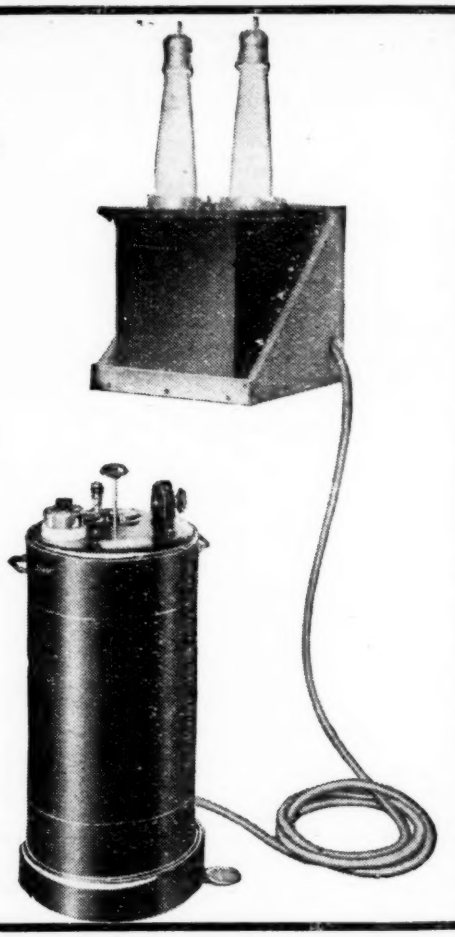

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British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

LONDON: SATURDAY, JULY 2ND, 1927.

An Address ON ACROMEGALY FROM A SURGICAL STANDPOINT.*

BY

HARVEY CUSHING,

PROFESSOR OF SURGERY, THE HARVARD MEDICAL SCHOOL.

PART I.

ONE of the tiniest of the Virgin Islands, a speck named Little Vandyke, almost too small to be designated on a map, was once given over—and may still be, for all that is known—to the growing of cotton. On this plantation there happened to be born on November 22nd, 1744, of Quaker parents, a boy who six years later was sent to England to get his education. His chief asset appears to have been a negro "shuffle," which he had learned from his father's slaves; and without this chance accomplishment, so the story goes, the attention of the Reverend Samuel Fothergill of Warrington would probably not have been drawn to the inconspicuous lad. As it was, he gave him a halfpenny, ere long became his guardian, and in course of time recommended him to the consideration of his brother, Dr. John Fothergill of London, whose protégé he was destined to become. This, in small compass, was the early story of John Coakley Lettsom, the founder and chief benefactor of the venerable society I have the privilege of addressing.

Being the first of my countrymen, so far as I am aware, to give this Annual Oration, it is fitting that I should call to mind the debt we owe to Fothergill and Lettsom for their unfailing kindness to a succession of American students who in the early days came here to walk the hospitals. Fothergill even found occasion to give a helping hand in starting two of our oldest medical schools—that in Pennsylvania, established shortly before the separation of the colonies, and that in the State of Massachusetts shortly afterwards.

Since I happen to occupy a chair in this latter school, I may recall to you that Benjamin Waterhouse, one of its founders and its first Professor of Medicine, was a relation of Fothergill's—sufficiently close to call him "Uncle"—and also that, through Waterhouse, Lettsom once presented to Harvard a large and valuable collection of minerals to encourage, in our backward land, the study of natural science. Thus do some of the medical traditions of my country become interlocked with those of the Medical Society of London.

Men of the calibre of Fothergill and Lettsom were universalists in medicine, with interests comprehensive and manifold. This was more possible in their time than in ours, and I fear they would have looked askance on the modern tendency to ultra-specialization as something foreign to the best interests of our medical guild. I feel somewhat conscience-stricken over this, since I have chosen to devote my address to a consideration of the surgical aspects of a malady which would have seemed to them, and I fear may to many of you, as small a speck on the medical horizon as is Little Vandyke on the geographer's chart.

Though we begin our professional lives with a general training, we very soon find that there are certain maladies or phenomena of disease that particularly interest us, and from opportunity or force of circumstance come largely to engage our attention. It is in this way, by progression from the general to the particular, that specialization arises, and though in the process the field may narrow, at the same time the point of view may broaden. Concentration on a given subject, however small, makes it loom large to the observer, and as Lettsom's significant life had an obscure beginning, so the speck that I propose to discuss may, if fortune favours, be expanded into something worthy of this occasion.

For those of us whose student days go back to the "nineties," the pituitary body was too inconspicuous an object to attract much notice, or, if noticed, it was brushed aside as a vestigial relic of no recognizable importance. There were glimmerings, to be sure, of its relation to the disorder to which Pierre Marie had recently given a name, but this was about all. Once pointed out, this disorder was unmistakable, and yet acromegaly was looked upon, for long, as little more than a freak of nature which eclipsed understanding, in its extreme forms fit only for the "side-show," to be exhibited with the giant, the dwarf, the bearded woman, and the fat boy whose hypophyseal and cousinly relationship was as yet unrecognized.

Of the manifold functions of the pituitary body and of its relation to the other glands of internal secretion there was then not the slightest conception. How different, by contrast, to-day, when the problems of endocrinology absorb the attention of such a host of investigators that scarcely a month passes without some new light, from one aspect or another, being shed on the kaleidoscopic subject! Not since the early discoveries in bacteriology has there been anything comparable. Nuggets, to be sure, had already been picked up by such as Addison, Graves, Gull, Ord, and many others who were the pioneers. But the rush to the gold-field did not begin until after the discovery of an effective substitution therapy for myxoedema, and the recognition of exophthalmic goitre as its counterposed state. And when, a decade later, the maladies of hypophyseal origin began to be better understood, and the disclosure was made that all the ductless glands were functionally more or less interdependent, not only was the interest of the profession at large finally aroused, but the curiosity of the laity as well, in consequence of which, for popular consumption, much twaddle has come to be written on the subject.

There are certain general principles on which, right or wrong, we have come to base our conception of the way in which the ductless gland disorders affect the body. The first of these is grounded on the presumption that there are counterposed states of primary underfunction and of primary overfunction for every individual member of the so-called endocrine series. It is assumed, moreover, that each of these states, in the case of every gland, will evoke its own peculiar clinical syndrome, some of which we already recognize, and some few of which, more particularly the deprivation states like myxoedema, diabetes mellitus, eunuchoidism, tetany, and so on, may be experimentally reproduced in animals. This view, at least, has long served as our working hypothesis, even though in its support the experimental reproduction of states of glandular overactivity has so far largely baffled us.

* The Annual Oration before the Medical Society of London on June 13th, 1927.

This hypothesis has been largely the outgrowth of our experiences with thyroid disorders, and surgery has played no small part in its elaboration. I need recall only a few incidents in the well known story. That Gull's myxoedema was really due to thyroid deprivation, Kocher's experiences with post-operative "cachexia strumipriva" served to make probable; and the success of Horsley's and Murray's substitution therapy left no doubts in the matter. On the other hand, the view advanced by Moebius and Greenfield that exophthalmic goitre was possibly due to glandular overactivity, first suggested by the disclosure that thyroid extracts exaggerated the syndrome, was finally substantiated by Halsted's discovery that experimental hypertrophy of the thyroid is characterized by the same histological alterations that are found in the goitre of Graves and Basedow. Thereby it was shown why extirpation of the thyroid in this peculiar form of goitre would serve to ameliorate its symptoms. We accordingly have come, with a good deal of confidence, to speak of hyperthyroidism as opposed to hypothyroidism, of which states the basal metabolic rate now gives us a fairly reliable measure.

This, briefly, is the first principle; and on this basis it might well enough have been anticipated that for each of the other glands, acting more or less independently of one another, a clinical syndrome of overactivity and underactivity would by this time have come to be recognizable. However, in the case of the hypophysis alone has this anticipation finally been realized; and though clues serviceable in partially solving the thyroid riddle were persistently followed, even this has been a most complicated task.

An enlargement of the thyroid is for all to see, and in regions where goitre is endemic the surgeon was primarily induced to operate upon cases in which life was endangered or made insufferable from pressure of the enlarged gland on the trachea. Hazardous procedures they proved to be. They were critical enough in themselves, without the unforeseen dangers that lurked in the background of convalescence until, through experience and experiment, it slowly dawned on men's minds that a residuum of thyroid tissue must be left and that the parathyroid glands must be spared if subsequent health—even life itself—was to be maintained.

In comparison, even to get a start in untangling the pituitary problem was far more difficult. Not until roentgenology came to be sufficiently perfected as a diagnostic aid could we really tell with any assurance when the gland was actually tumefied, and its inaccessibility long served to remove it from surgical temptation. Even its experimental removal in animals was difficult to accomplish and gave contradictory results, due in large measure, as we now know, to coincidental lesions of nervous centres adjacent to, and which possibly preside over, the activity of the neuro-hypophysis. In short, hypothalamic injuries long led to as much confusion in the interpretation of the results of experimental hypophysectomy as did the removal of the parathyroids in interpreting the consequences of thyroidectomy.

One of the first questions to be raised in regard to acromegaly concerned its possible relation to the pituitary tumour found in some of the first cases submitted to autopsy; and the acromegalic skeletons in pathological museums the world over were being examined to see whether they showed an enlargement of the sella turcica, which most of them did. However, from time to time examples of acromegaly came to be described in which there was no demonstrable tumefaction of the gland; and, to make the confusion worse, examples of undoubted pituitary tumour, to judge from the syndrome of an enlarged sella combined with a primary optic atrophy and bitemporal hemianopsia, were being put on record which showed no trace whatsoever of acromegalic overgrowth. Quite the contrary, these patients exhibited a medley of inexplicable symptoms, such as dwarfism, sexual dystrophy or infantilism, diabetes insipidus, adiposity, amenorrhoea, myxoedematous atrophies, and so on.

But out of this chaotic jumble order has begun to shape itself, and we are at least coming to close quarters with the riddle. To its partial solution countless persons have made contributions, which piece by piece have been fitted together. The physiologists and biochemists have chiefly centred their attention on the active substance discovered in extracts of the neuro-hypophysis. The pathologists have, with some measure of success, come to differentiate certain of the hyperplasias and other tumefactions which affect the gland. The morphologists have shown how, in the development of Rathke's pouch, the epithelial *anlage* of certain of the congenital tumours may arise. The experimentalists have laboriously undertaken to determine the secondary effects of ablation of the gland or of portions of it, the amphibian embryo no less than the adult mammalian animal having been called upon for the purpose. As a combined result of these many disconnected studies, the obscurities of the past are here and there sufficiently clarified, so that we begin to have a partial explanation at least of some of the constitutional effects of deranged pituitary function. Curiously enough, it was not acromegaly, but the reverse condition, that had its first experimental counterpart brought to light.

Following the grudging acceptance of the view that the syndrome of Marie was usually associated with, if not positively due to, a pituitary tumour, it was a natural assumption that the normal function of the gland, whatever it might be, had been abolished, and consequently that its experimental ablation ought to reproduce the symptoms of acromegaly. But those who undertook to corroborate this assumption reported most conflicting results, some claiming that the removal of the gland had no effect whatsoever on the organism, others that its removal led to cachexia and death. No one claimed to have produced anything suggestive of acromegaly; but it was finally observed that certain incomplete extirpations on adult animals led to adiposity and sexual dystrophy, symptoms quite comparable to those which had been seen in clinical cases; and ere long it was found that similar procedures in young animals led to skeletal dwarfism and prevented sexual development. Here, then, were experimental states due so obviously to lessening or deprivation of function as to force the conclusion that acromegaly must be ascribable to a counterposed state—namely, to glandular overactivity.

Reduced to simple terms, these early experiments showed that the hypophysis secretes a substance or substances which not only influence growth, but which have a marked effect upon the activity of the reproductive organs. Just what portion of the gland possessed these properties was long a matter of uncertainty. A physiologically active principle had been found only in extracts of the posterior lobe; but most physiological experiments deal with acute reactions, and it was not until an experimental morphologist took the matter in hand that the growth-stimulating principle was convincingly shown to be the property of extracts of the anterior lobe alone.

Since the time of Galvani the frog has been hailed as the chief contributor to physiology. No less in these present days does the domesticated rat, the biometrical standards of whose life-history have been accurately established, promise to play this important role in experimental morphology. And it is to the rat in the hands of certain investigators that our thanks are due for giving the first wholly dependable and clear-cut results in the hypophyseal problem.

We have learned that menstrual disturbances characterize all forms of pituitary disease in the female; and strangely enough it was primarily through his studies of the oestrous cycle in rats that Professor H. M. Evans of the University of California first came to investigate the effects of injecting pituitary extracts into these animals. He found that fresh anterior lobe extracts would not only interrupt oestrus in adult female rats but would prevent its onset when given to pre-adolescent animals. He found, further, that when intraperitoneal injections of these extracts were continued over a long period the growth of the animals was greatly accelerated, and that experimental gigantism could thereby be produced.

How excited Lettsom's friend John Hunter, who so ardently sought for an explanation of growth, would have been in these disclosures, whose fundamental importance can hardly be overstated! Not only have they served to lay the growth principle exclusively at the door of the anterior hypophysis, but, for the first time, in the case of any member of the ductless gland series, there has been

reproduced in the laboratory what heretofore has only been theoretically assumed to be a clinical state, due to excessive rather than to a perverted glandular secretion. Dr. Evans's observations have been confirmed in my laboratory by Tracy J. Putnam, who has succeeded in producing some gigantic animals; and I may show (Fig. 1) the roentgenogram of one of them with its control.

The large female rat on the right was born on October 28th, 1925, of a thoroughbred stock. On January 21st, 1926, when she weighed 163 grams, intraperitoneal injections of a neutral filtered aqueous extract of anterior lobe beef hypophysis in amounts equivalent to about one-tenth of a beef gland daily were begun. The *x* ray was taken on August 5th, 1926, at which time she weighed 500 grams.

The small (control) rat on the left, also a female of the same stock, was born on November 2nd, 1925. On January 21st, 1926, she weighed 165 grams. She was given injections of commercial anterior lobe extract, which proved to be without effect. At the time the *x* ray was taken she weighed 260 grams.

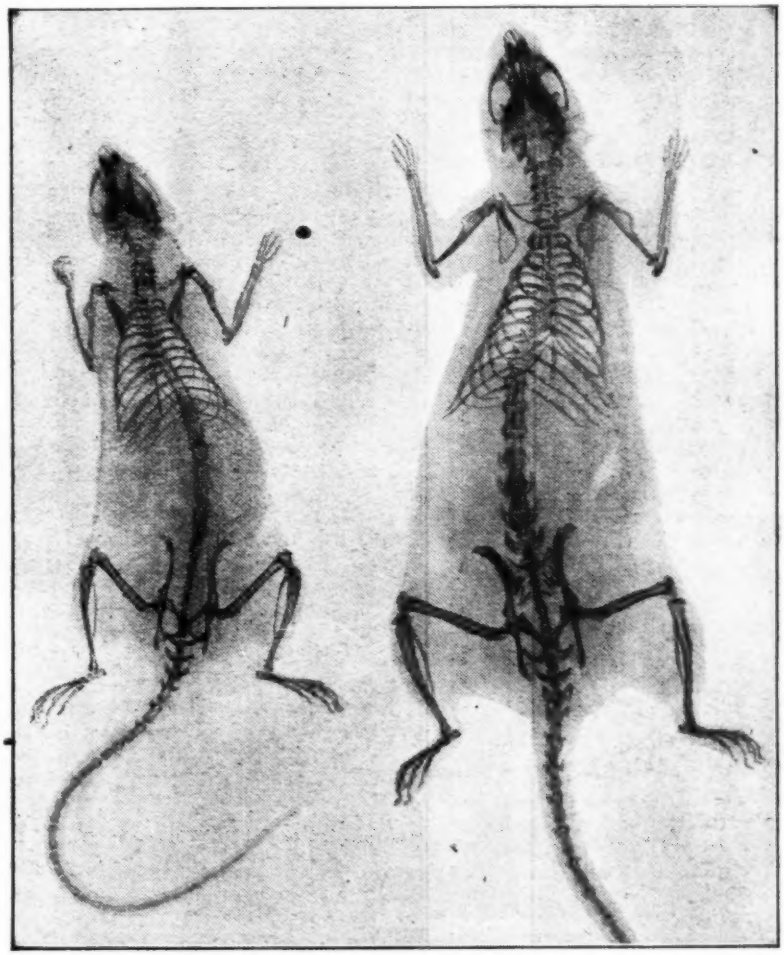


FIG. 1.—Roentgenogram (one-third natural size) of experimentally produced gigantism in the rat. (Kindness of T. J. Putnam.)

The chief difficulty in the way of success in these experiments lies in the securing of an active extract, for the bovine glands which serve as the usual source of supply seem to vary to a great extent in the amount of the somewhat unstable principle they contain; and it has been my impression for some years that cattle have a seasonal wave of relative pituitary inactivity. Much labour will have to be expended before we have at our command a reliable extract, which can be standardized and kept sterile so that it may be employed for clinical purposes; but the discovery that the pars anterior actually contains a growth-stimulating principle will doubtless spur the biochemist to run it down. And when this substance comes to be isolated, as it almost certainly will be, there will be a different story to tell.

To be sure, these experiments have not reproduced acromegaly, but only gigantism. They nevertheless bring support to the view, long held, that these two clinical conditions are closely related, are both hypophyseal in origin, are both ascribable to an excessive secretion of the anterior lobe. As long conjectured, the one (gigantism) probably is the result of a process which has started before the epiphyses have become ossified—which they never do in the rat—whereas the other (acromegaly) is an expression of the same influence which has started after epiphyseal growth has ceased.

If we are indebted to the rat for the illuminating discoveries just mentioned, we are no less indebted to this same animal for more exact information than we have heretofore possessed in regard to the reverse state of pituitary insufficiency. Most of the early observations on experimental hypophysectomy were made on the cat and dog; and though they have taught us much, control observations have not been wholly reliable or satisfactory, owing to the slower development and life cycle of these animals, and to their great variability in kind. It is quite otherwise with the rat; and Professor P. E. Smith of Leland Stanford University has devised an operative procedure whereby hypophyseal or parahypophyseal lesions on this animal may be accurately made with results far more dependable than any heretofore attained. Not only are the symptomatic effects of the operations more promptly and strikingly shown than in other animals, but the possibilities of replacement therapy to atone for the glandular deprivation have been for the first time convincingly demonstrated. In comparison, all antecedent observations on the effects of experimental hypophysectomy laboriously made on the dog are become superseded, and remain of little more than historical interest.

In a recent series of papers written with the collaboration of my late assistant, Dr. L. M. Davidoff, we have entered into some consideration of the effects of disordered pituitary activity on the other endocrine organs, apart from the sex glands, the function of which is so obviously dependent on the hypophysis. In one of these papers[1] the autopsy findings in four cases of acromegaly were described, and emphasis was laid not only on the extraordinary splanchnomegaly which the disease often provokes, but upon the alterations in the other ductless glands, most notably shown as hyperplasia of the thyroid, the parathyroids, and the adrenal cortex; in states of pituitary deficiency, on the contrary, these particular glands are found to be atrophic.

These widespread alterations in the ductless gland series, which so strikingly characterize pituitary disorders as to set them quite apart from the disorders primarily affecting any other ductless gland, are equally apparent in the experimental counterparts of the clinical states. As the outcome of some correspondence with Dr. Smith on this subject, he has kindly given me photographs of certain of his hypophysectomized animals with subjoined protocols, and has generously permitted me to use the figures for the purpose of this address. They tell, far better than can any description, not only what are the symptomatic consequences in the rat of some of these deprivation states, but what may be accomplished, in the laboratory at least, by replacement therapy.

The first of these photographs (Fig. 2) shows two litter-mate brothers born on May 21st, 1925; the animal on the right was hypophysectomized on June 16th, and had grown scarcely at all subsequent to the operation. The photograph was taken four months later when the animals were sacrificed. The thyroid and adrenal glands were highly atrophic.

The next two photographs (Figs. 3 and 4) show two litter-mate brothers born on October 22nd, 1925. The animal on the right, then slightly the larger of the pair, was hypophysectomized on November 27th. Three months later (February 24th, 1926) the control weighed 338 grams, and the hypophysectomized animal 108 grams (though 4 months of age this animal had never mated). At this time, just before the photograph (Fig. 3) was taken, the left testis had been removed from each of the animals, and the

organs are shown. The dwarfed and sexually infantile animal was then given each day a homoplastic hypophyseal transplant, and on April 20th he mated with a female in oestrus and a litter resulted. Daily pituitary transplants were continued until the hypophysectomized animal had almost caught up in weight (288 grams) with its control brother (385 grams). On May 9th, when the photograph (Fig. 4) was taken, the pair was sacrificed and the remaining testis of each is shown in the figure.

The next photograph (Fig. 5) shows two litter-mate sisters born on December 25th, 1923, the animal to the right having been subjected on February 5th, 1924, to an injury of the hypothalamic region without hypophyseal extirpation. On February 27th, 1925, this animal weighed 840 grams to 299 grams for the control. The animal was sacrificed on this date, and an extensive atrophy of the sex apparatus was disclosed, the other ductless glands being of normal size.

measures, surgical or otherwise. These several syndromes have come to have a varied and somewhat confusing nomenclature, which must for a moment detain us.

NOMENCLATURE.

When terms such as myxoedema, exophthalmic goitre, cretinism, acromegaly, and so on, descriptive of certain clinical states of unknown etiology, become, through use, thoroughly established, it is difficult to uproot them. Even to suggest doing so is perhaps discourteous to those who planted the seed. Descriptive terms, however, may prove to be exceedingly inconvenient from a nosological stand-

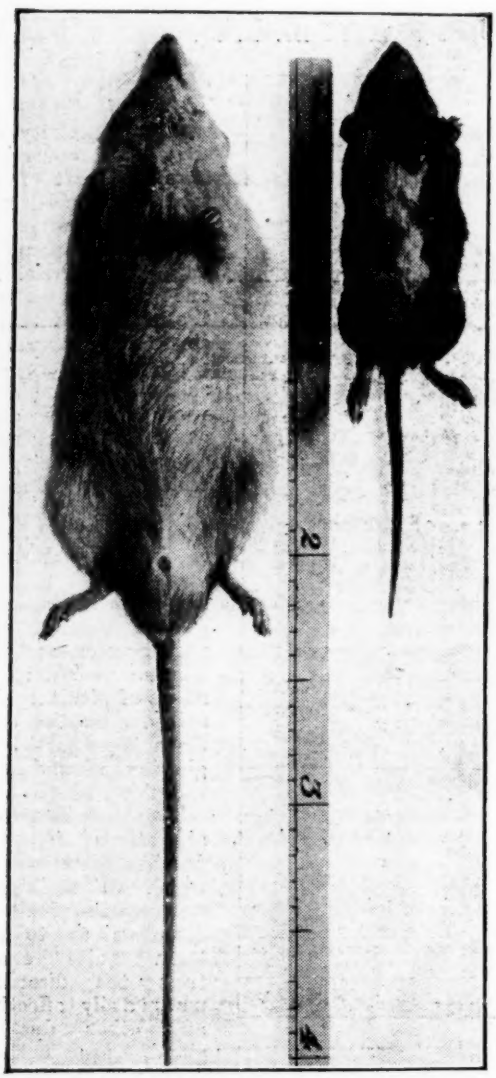


FIG. 2.—Litter-mate brothers, showing effect of early hypophysectomy in producing dwarfism with atrophy of the endocrine system. Measurement in decimetres. (P. E. Smith.)

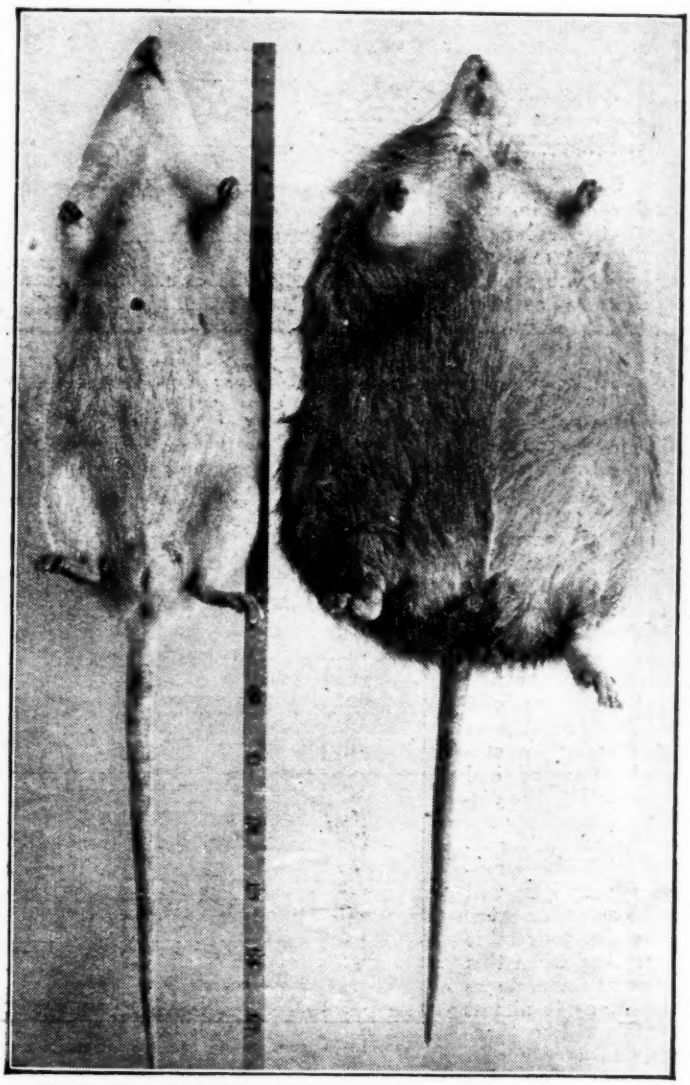


FIG. 5.—Experimental hypothalamic syndrome. Measurement in centimetres. (P. E. Smith.)

Taken in conjunction with the observations by H. M. Evans and his co-workers on experimental rat-gigantism, these illustrations of the counterposed state, to the study of which P. E. Smith has confined himself, show what an immense field has been opened up for future investigations of pituitary function, which can be far more precise, owing to the species chosen for experimentation, than any heretofore undertaken.

This is only the beginning of what we shall some day know about this amazing structure which conducts the endocrine orchestra, and brings therefrom harmony or disharmony, overtones or undertones, according to its physiological mood. But let us see, from the striking results already attained, what light may be thrown upon the several clinical syndromes we have come to recognize, and in what ways the experiments concern our therapeutic point, and were there any choice permissible it would be preferable to cling to such non-committal eponyms as the syndrome of Gull, or of Graves, or of Marie, as we have done with Addison's disease.

The particular inconvenience in the case, for example, of *acromegaly*, is that the term, which is now associated in the minds of all with a state due to hypophyseal overaction, merely described an enlargement of the acral parts of the body. It accordingly gives no opening for an opposed term to describe the now recognized counterstate of all that "acromegaly" once conveyed; for *acromicria*, a smallness of the extremities, would mean nothing at all, and other designations that have been suggested are no more satisfying.

Had the designation *macrosomia*, implying overgrowth in general, suggested, I believe, by Hastings Gilford as appro-

priate for Marie's syndrome, not fallen on sterile soil, *microsomia* would have been a convenient term for the growth deficiencies which are the striking features of the reverse state. Adiposo-genital dystrophy merely calls up a syndrome which may not necessarily be hypophyseal at all, and though such eponyms as Frölich's disease, Lorain's disease, and Simmonds's disease bring to mind certain recognizable clinical types of pituitary deficiency, there are still others unnamed.

However much those who know the appeal of medical history may wish to dwell upon and cherish the names of its eponymous heroes, it would be better for medical terminology to abandon or at least to modify symptomatic designations and eponyms when they no longer convey what a single term should convey. So in the case of the thyroid disorders, though the terms Graves's or Basedow's disease and exophthalmic goitre, for the state counterposed to myxoedema and cretinism, have long served a useful purpose, they are coming to be superseded by hyperthyroidism and hypothyroidism, as being more precisely descriptive, particularly since we have grown to recognize types of thyroid overactivity not associated with exophthalmos.

For similar reasons some years ago the terms *hyperpituitarism*, *hypopituitarism*, and *dyspituitarism* were suggested as correspondingly proper substitutions for acromegaly, for its counterposed state, and for overlapping types of the two; and though these words are quite a mouthful, and, what is more, have a mongrel derivation, hyper- and hypo-hypophysism were phonetically quite impossible. To these three terms, which, of course, apply merely to varying grades of glandular activity and have nothing to do with the presence or absence of an associated tumour, we may properly add a fourth, *apituitarism*, indicating the complete loss of pituitary activity.

Let us now consider, briefly, what are the clinical expressions of these four graditional states, and by what pathological lesions (some of which have definite surgical bearings) they are brought about. We may begin with the effects of complete glandular deprivation.

A. APITUITARISM.

Does such a condition as cachexia hypophyseopriva due to acute destruction of the gland, whether by experimental, pathological, or surgical processes, really exist? This is an important question for the surgeon. If the hypophysis can be removed in its entirety without serious ill effects, the problem of treatment of the adenomas, which represent by far the commonest form of tumour affecting the gland, becomes greatly simplified. If, on the other hand, serious consequences are likely to occur, or may occasionally occur, the operation of total or subtotal hypophysectomy must be deferred until some method of substitution therapy has been found sufficiently effective to offset them.

It is obviously a matter to settle in the laboratory, not in the clinic. But the laboratory so far has given conflicting results. My own impression has been that total extirpation often provokes a peculiar train of symptoms passing from cachexia to coma and ultimate death—a sequence, to be sure, more likely to appear acutely in adult than in younger animals; but even in the older animals the same operative procedure, short of a total removal, leads to no comparable ill effects. On the other hand, Dandy and Reichert, who have recently reopened the question, claim that the operations on which the preceding

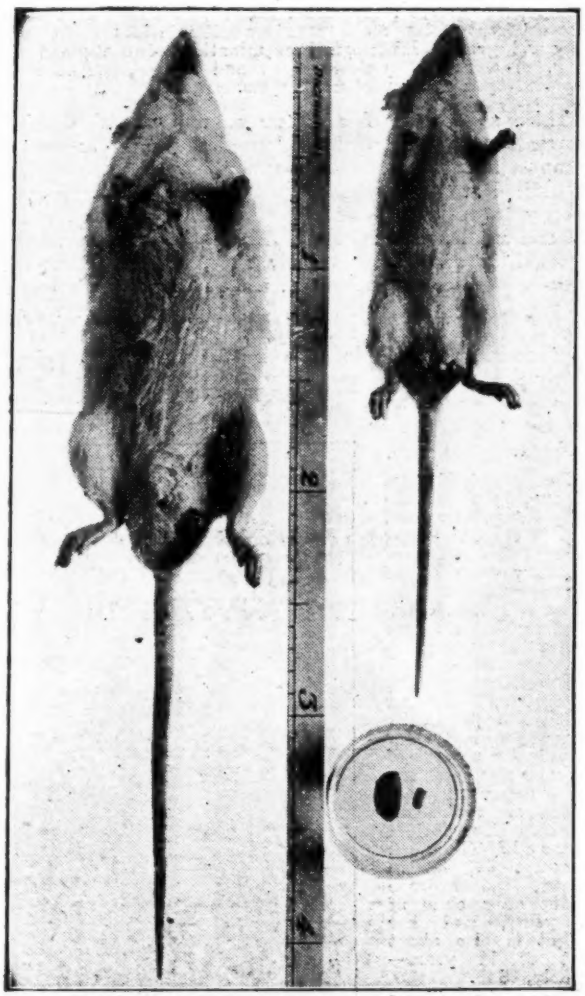


FIG. 3.—Litter-mate brothers, showing comparative size of testes of control and of dwarf three months after hypophysectomy. Measurement in decimetres. (P. E. Smith.)

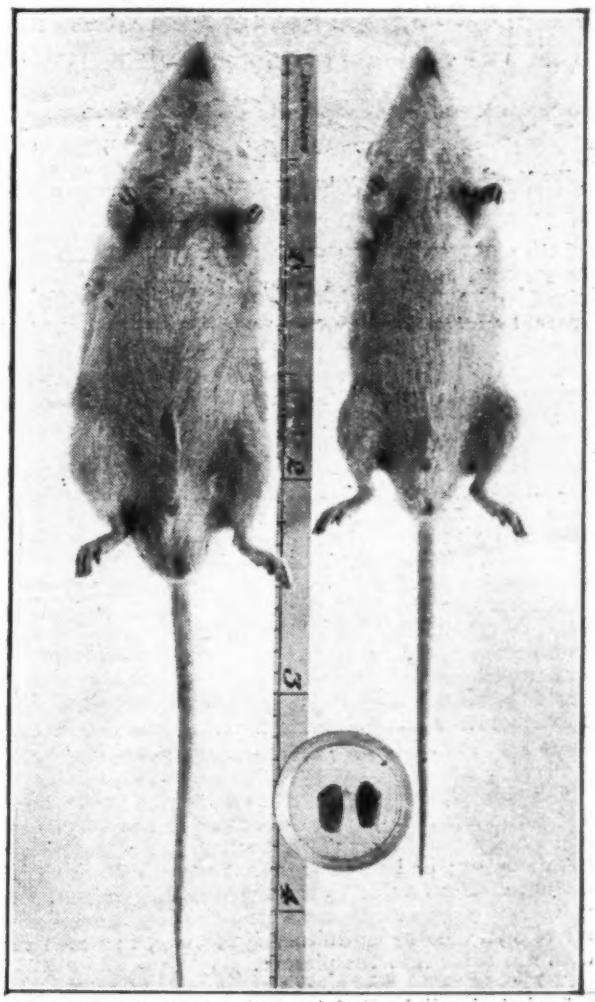


FIG. 4.—Same animals as in Fig. 3, three months later. To show the growth-stimulating effects of substitution therapy on the hypophysectomized animal and on its remaining testis. Measurement in decimetres. (P. E. Smith.)

conclusions were based must have been faulty, to judge from their own negative results on this particular score for dogs of any age. And certainly the young rats used in Dr. Smith's experiments appear to have shown nothing at all suggestive at least of the acute cachexia which had been described.

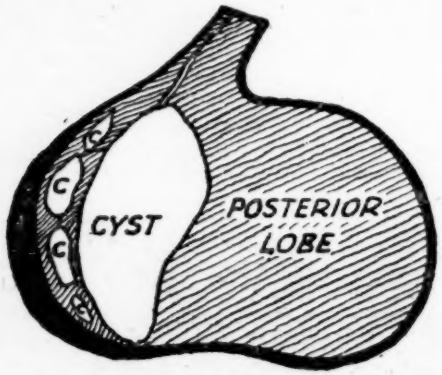


FIG. 6.—Showing cystic lesions produced by infarcts largely replacing anterior lobe of a pituitary dwarf. Remainder of gland normal. (Simmonds.)

In view of these contradictory experiences, has the surgeon heretofore been unduly fearful of the consequences of total hypophysectomy? Have the disabilities that would ensue possibly been exaggerated, and might he not venture to remove completely an adenomatous gland regardless of the patient's age? A partial answer, which will continue to stay his hand, comes from clinico-pathological observations, which go to show that destruction of the gland by morbid processes of one sort or another, particularly in adults, may lead to a fatal cachexia. In my Cameron Lectures I cited the case of a middle-aged woman apparently in normal health who, suddenly overcome by a severe headache, gradually passed into a deep stupor associated with a surprisingly low body temperature, with a fatal issue on the third day. Nothing abnormal was found at autopsy, apart from a destructive haemorrhage into what must have been an adenomatous hypophysis, that had given no antecedent symptoms.

Largely, I believe, for want of a detailed routine examination of the hypophysis as the possible source of unaccountable deaths, only a few cases of this kind have been reported. But even though the evidence for the syndrome of acutely fatal cachexia hypophyseopriva may be unconvincing, there can be no doubt in the minds of any of the existence of the slower form of cachexia, due to a relative rather than absolute anterior lobe deficiency.

B. HYPOPITUITARISM.

The clinical manifestations of hypopituitarism are most varied. They depend on whether it has originated in childhood or adult life; whether it is or is not associated with tumour; and whether or not there are accompanying disturbances referable to the hypothalamic region. Let us primarily consider for a moment the least complicated of all recognizable hypopituitary syndromes, in which tumour does not enter into the picture.

1. *Anterior Lobe Deficiency due to Ischaemic Necrosis (Simmonds's Disease).*

To the late Professor M. Simmonds, the Hamburg pathologist, we are chiefly indebted for pointing out the frequency with which the pituitary body, in the course of septic infections, may be affected by embolic processes. They may occur at any time of life, but the consequent symptoms naturally will differ greatly according to the age of onset. In his first communication[2] he reported thirteen cases in which varying degrees of destruction, particularly of the anterior lobe, had been produced by infarcts, septic or otherwise, not infrequently a consequence of puerperal sepsis. In one instance the patient's premature senility, somnolence, and death were ascribed to the almost complete cicatricial destruction of the gland which the *post-mortem* examination disclosed; and in a subsequent article (1918)[3] three other equally striking examples of a corresponding condition were recorded. All three were adult women who before death had shown the characteristic evidences of pituitary old age, and at autopsy, in addition to the destructive lesion involving the hypophysis, there were found atrophic changes involving other glands and viscera (splanchnomicria), exactly the reverse of the glandular hyperplasias and the splanchnomegaly that characterize clinical hyperpituitarism.

Should a comparable infarct of the anterior lobe occur in childhood and be confined to the pars anterior, and should recovery occur, the effects naturally would be still more striking. For the victims of such a lesion would cease to grow, and would remain in a condition of nanism precisely comparable to that brought about by the experimental ablation of this portion of the gland in young animals. Simmonds had the good fortune to make a *post-mortem* examination of one of these cases, which he has reported in a third article in his series.[4]

The patient was a dwarf, 110 cm. in height, a member of a Lilliputian troupe, who died in his twenty-first year from a septic meningitis following otitis media.

The *post-mortem* examination showed, in addition to the usual visceral hypoplasias, an extremely small pituitary body, weighing only 0.2 gram. Histological examination of the gland showed (Fig. 6) a normal posterior lobe and an anterior lobe largely replaced by a number of small cysts.

This, so far as I am aware, was the first reported example of a case of hypophyseal dwarfism in which the symptoms had not been produced by a tumour, leaving it difficult to tell whether the disturbance in growth had been due to a loss of function of the entire gland or to one of its subdivisions. These embolic lesions in all probability are not extremely rare, and doubtless careful *post-mortem* examinations in the future will disclose more of them. Naturally enough, the symptoms will vary from case to case in their severity, and I may briefly report a representative example of a mild grade of this form of nanism, due almost certainly to uncomplicated anterior lobe deficiency, and, in view of the history, probably produced by a septic infarct.

FIG. 7.—Patient, 28 years of age, with Simmonds's syndrome, following a general infection with probable anterior lobe infarcts at 8 years of age.

The patient, 28 years of age, is a particularly lively, vivacious, and intelligent young woman, the victim of pituitary dwarfism of the Simmonds type. After a normal childhood she had a severe illness when 8 years of age, which was diagnosed as "black diphtheria," after which she practically ceased growing. Her parents are persons of average size, and she has a sister two years older of normal height. The patient herself (Fig. 7) measures 54¾ in. in height, the average height of a child of 11 years, and her weight is also about that of 11 years—namely, 75 lb.

Since the illness mentioned above, she has enjoyed perfect health, has never had any polyuria or polydipsia, and has never had the slightest tendency toward adiposity. She never menstruated, there is no sign of mammary development, and only a few sparse hairs in the axillae and on the pubis. As in so many of these cases, her face looks actually older than her years, and she has the horizontal wrinkles on her forehead and the cutaneous appearance of a middle-aged person.

The *x* rays show a small sella of normal configuration. The cranial bones, however, are exceedingly thin, and though her teeth are all erupted they have been soft, and have needed constant attention. The epiphyseal lines of the long bones are still present, and there is no question but that, given an active anterior lobe substance, she might even now be made to bloom suddenly into normal and adult womanhood. Her present state, of course, is the exact reverse of gigantism.

Among the many other forms of nanism, all of which are probably either primarily or secondarily of hypophyseal

origin, there is another striking type, first described by Jonathan Hutchinson, and for which the term "progeria," signifying "premature old age," was introduced by Hastings Gilford. Hutchinson's patient, when 15½ years of age, had the aspect of a decrepit old man, was 3 ft. 7 in. in height, and weighed 38 lb.; two years later he died of apparent senility. A marked example of this condition in a female was observed in my clinic some years ago.[5] At 8 years of age she was a wizened old woman in miniature (Figs. 8 and 9), weighing 31 lb., and 3 ft. 1¾ in. in height. The combination of infantilism and senilism characterizing the syndrome, once seen, is unforgettable.

These forms of hypophyseal nanism uncomplicated by tumour are obviously the clinical counterpart of the dwarfed animals produced by removal of the epithelial

FIG. 8.—Patient, 8 years of age, with the Hutchinson-Gilford syndrome, progeria. Probably an expression of extreme anterior lobe deficiency dating from early life.

FIG. 9.—Same as Fig. 8, to show atrophic character of skin and subcutaneous tissues.

portion of the gland; and they show what would be the consequences of its surgical extirpation at correspondingly early periods of life. Such an exigency, however, would only be likely to arise during the course of an operation for tumour; and a few of the more important neoplasms which are accompanied by hypopituitarism may now be considered.

2. *The Deficiency Syndromes due to Compression of Parahypophyseal Tumours (Fröhlich's Disease, etc.).*

As previously stated, long before we knew much about pituitary dysfunction and the disturbances of growth produced thereby, cases had been reported by a number of clinicians who had been struck by some peculiar symptom or combination of symptoms in a patient known to have an hypophyseal tumour. One of the early reports of such a syndrome was made by Alfred Fröhlich (1901) from Frankl Hochwart's clinic in Vienna.[6]

The patient was an intelligent 14-year-old boy who had long suffered from periodical headaches, and who had shown a sudden tendency to become adipose. Coincidentally there was a rapid loss of vision, with total blindness in one eye and temporal hemianopsia in the other, associated with a primary optic atrophy. The first impression of the case was that it was one of pituitary tumour associated with myxoedema.

This case was reported in the days before cranial roentgenology had been greatly perfected; and to-day one may only conjecture that the syndrome was produced by a congenital cystic tumour, the walls of which usually become sufficiently calcified to cast a shadow to the *x* ray. The patient, however, was not a dwarf, nor was he old enough to show sexual dystrophy; and Fröhlich's chief contribution lay in his assembly of similar cases gathered from the literature which showed how often tumours in the pituitary region were associated with adiposity and a peculiar appearance suggesting myxoedema, for which pituitary insufficiency may be easily mistaken.

A similar case, also from Frankl Hochwart's clinic, was ere long reported, in which Erdheim found at autopsy a congenital tumour overlying a supposedly intact hypophysis, a fact which led him to believe that the dystrophies shown by the patient were hypothalamic rather than hypophyseal in origin; and over this disputed point much ink has since been spilled.

The syndrome these tumours provoke is much less clean-cut than that of Simmonds's disease just discussed, because the various portions of the gland (pars anterior, posterior, and tuberalis) as well as the adjacent hypothalamic centres may, in varying degrees, have been functionally interfered with. Consequently we may meet with Rathke's pouch tumours which have first given local symptoms in middle age, no evidences of dyspituitarism whatsoever being recognizable. On the other hand, what is more common, signs of pituitary deficiency may have been evident from early life; and even though children victimized by these lesions are mentally alert, being in this respect quite unlike cretins, they may show extreme degrees of adiposity or emaciation, of polyuria or the reverse, of dwarfism, of sexual infantilism, or of premature physical senility.

There have been, all told, 81 verified examples of these tumours in my series, and, as it happens, one of the patients, a dwarf who exhibits certain evidences of senium praecox suggestive of progeria, is at this writing under observation in the hospital.

FIG. 10.—Pituitary infantalism with diabetes insipidus, due to a cranio-pharyngeal pouch (Rathke) tumour. (Child with father.)

(Surg. No. 25031.) A girl, aged 3½ years, a child of Hungarian parents, was originally admitted on October 21st, 1925, owing to a rapid loss of weight associated with headaches, vomiting, polyuria, and polydipsia, of four months' duration.

She was (Fig. 10) an extremely undersized, undernourished child, weighing only 20 lb. and 34 in. in height. The optic discs showed marked pallor; to gross tests there was a bitemporal loss of vision, and the *x* ray revealed a slightly widened sella with superimposed calcification (Fig. 11)* which left no doubt as to the diagnosis.

An operation was not thought advisable and she was discharged; but a month later, owing to an increase of symptoms with subnormal temperature, somnolence, and an exaggeration of her polyuria, she was readmitted to the hospital and was operated upon on November 17th, 1925.

By the usual right frontal osteoplastic approach (Figs. 12 and 13) a cranio-pharyngeal pouch cyst was encountered and was withdrawn apparently in its entirety (Fig. 14). The operation was extremely well borne; her headaches completely subsided and the symptoms of diabetes insipidus ceased. Subsequent to her discharge she began to gain in weight, and there was a marked improvement in vision.

Following an attack of scarlet fever, and because of a tendency of headaches to return, she was brought back to the hospital for observation on May 16th, 1927. During the eighteen months' interval, though she has increased 10 lb. in weight, she has grown a scant half-inch. However, her vision is apparently normal, and the *x* rays show no trace of suprasellar calcification.

That this child should have recovered from the diabetes insipidus is unusual, for in the effort to dislodge one of these cysts, even when there is no pre-existent polyuria, diabetes insipidus may be produced by contusing the deformed hypothalamic region. The fact that she has not grown, or grown very slightly, since the operation makes it probable that the anterior lobe has been permanently damaged either from the long compression by the tumour or in the course of its removal. And this brings up again the point from which we cannot get far away—the essential need of substitution therapy if we are to deal effectively with these secondary symptoms, whether they are associated with a tumour or not. In this particular child Dr. Putnam is attempting to see what can be done to stimulate growth by parenteral injections of an active anterior-pituitary extract he has elaborated, fully realizing, in view of Dr. Smith's experiences, that homoplastic transplants, were they obtainable, would be far more effective.

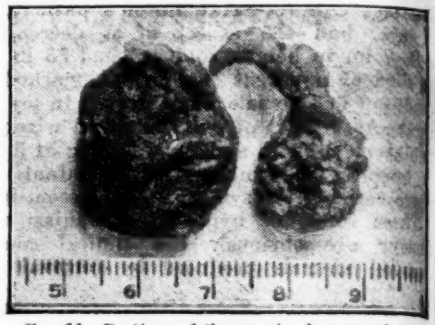
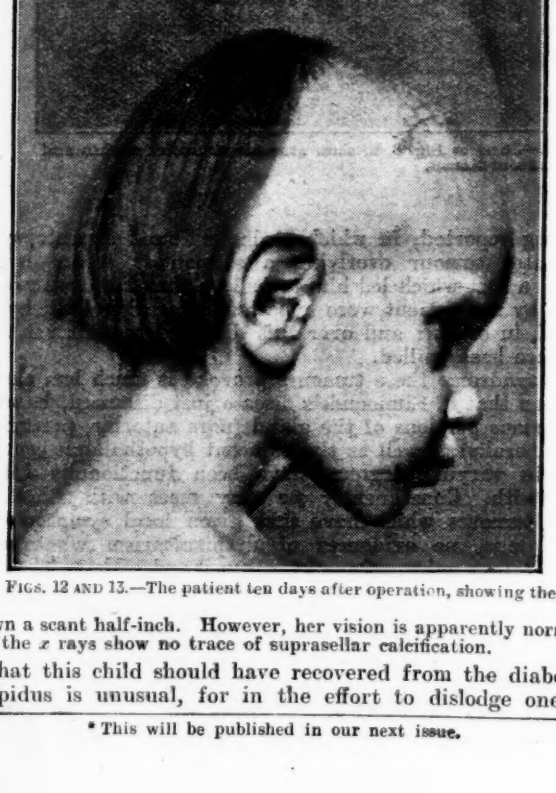


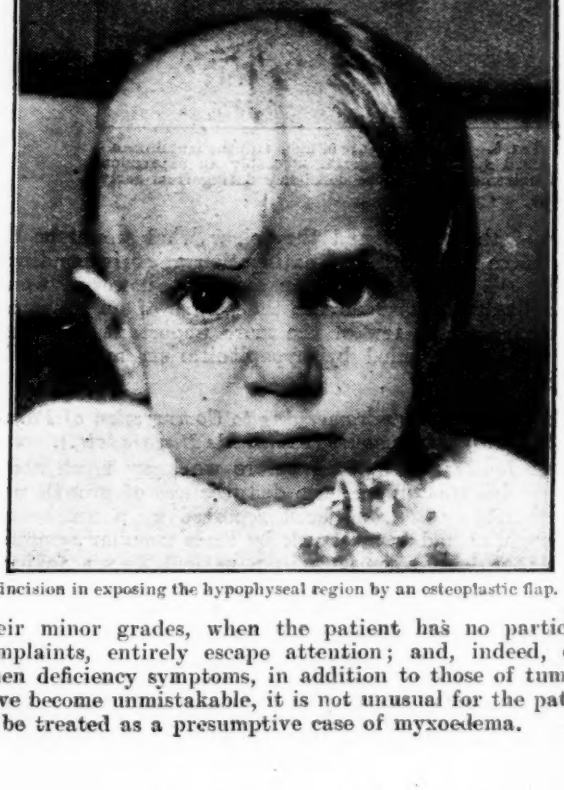
FIG. 14.—Portions of the cranio-pharyngeal pouch cyst removed at the operation.

3. *Hypopituitary States Associated with Chromophobe Adenomas.*

Of all pituitary syndromes, these are most often encountered, and they occur almost exclusively in adult life. To May 1st, 1927, there have been in my series 188 histologically verified examples—almost three times as many as the chromophile adenomas associated with acromegaly.

Though the disorder is a very common one, as common in all probability as goitre, one would hardly venture to make a diagnosis in the absence of definite local evidences of the growth, and since these patients, with rare exceptions, have already attained their full stature, the constitutional evidences of diminished glandular function are often inconspicuous, being limited to the well known cutaneous changes, with a tendency to adiposity and loss of hair, to sexual dystrophy, and so on. Unquestionably these states in their minor grades, when the patient has no particular complaints, entirely escape attention; and, indeed, even when deficiency symptoms, in addition to those of tumour, have become unmistakable, it is not unusual for the patient to be treated as a presumptive case of myxoedema.





FIGS. 12 AND 13.—The patient ten days after operation, showing the customary incision in exposing the hypophyseal region by an osteoplastic flap.

* This will be published in our next issue.

It was the experimental reproduction of similar states in adult dogs (without the tumour signs, of course) that gave the first clue to these disorders; and, what was then not so clear, the symptoms in all probability are almost wholly due to deficiency of the anterior lobe from which the adenomatous lesions originate. For even though these tumours may attain a large size and extend into the cranial chamber, they rarely cause hypothalamic symptoms.

To be sure, one sees occasional exceptions to the usual syndrome—namely, an adult patient with primary optic atrophy, bitemporal hemianopsia, and a ballooned sella, coupled with the constitutional evidences of diminished pituitary activity. We have, for example, encountered a typical chromophobe adenoma in a young child; and I have recently operated upon a middle-aged woman with primary optic atrophy and bitemporal hemianopsia associated with a sella turcica quite normal in size, in whom, owing to the absence of any hypopituitary symptoms, a small suprasellar meningioma was suspected. Consequently the chiasmal region was exposed by a transfrontal operation, and I found to my surprise a small enucleable chromophobe adenoma which had arisen from the upper part of the gland, and had pushed its way up under the chiasm without having distended the sella in the least.

But this was a most unusual experience. Ordinarily in these cases there is a greatly distended sella, and the usual operation is conducted from below by what is known as a transphenoidal procedure, in the course of which as much of the exposed growth as is thought expedient is spooned or "sucked" out with the sole purpose of counteracting its local pressure effects. The operations, in other words, are not undertaken with any expectation of altering the coexistent hypopituitary symptoms. For these either remain unaffected if, as is usual, nothing but adenomatous tissue is removed; or they may be exaggerated if any physiologically active though compressed remnants of the gland happen to be removed together with the tumour tissue; or they may, indeed, be lessened in severity should such remaining normal portions of the gland be enabled to resume their normal activity because of the decompression. Though we have seen examples of all these secondary consequences of the operation, its main purpose has been to preserve or to restore vision, and the degree of hypopituitarism has not entered largely into the question.

C. Dyspituitarism.

Though this term was originally used to cover all clinical expressions of disordered pituitary function, it would seem preferable to-day, now that these states are becoming clarified, to restrict it to that particular group of cases in which preceding hyperpituitary symptoms have become overshadowed by those of the reverse state. The experimental counterpart of dyspituitarism would be produced, accordingly, by hypophysectomizing a giant rat, which would impose a deficiency syndrome on the established hyperpituitary gigantism. Though such a state as this, so far as I am aware, has never been studied experimentally, there is clinico-pathological evidence that such a transitional syndrome exists.

In a recent paper from my clinic by Drs. Dott and Bailey,[7] attention was drawn to certain mixed types of adenoma, of which fourteen definite examples have so far been identified out of our total verified series of 271 adenomas of all kinds—not a large proportion, to be sure, but all questionable cases have been excluded. What first called attention to these transitional adenomas, formerly classified as chromophobe, was the fact that it has been sometimes difficult to tell clinically whether the patient's malady has been accompanied by a deficiency syndrome from the outset, or whether it may not in its early stages have been hyperpituitary, to judge from suggestive traces of pre-existing acromegaly or gigantism.

However, since in these mixed or transitional cases the surgical problem does not differ from that discussed above under hypopituitarism, due to chromophobe adenomas, we may pass to the consideration of our final and most important group of cases, to which all this long story is merely preliminary.

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The Mackenzie Davidson Lecture.

ON THE EFFECTS OF RADIATIONS ON PATIENTS AND RADIOLOGISTS, AND ON PROTECTION.*

BY

SIR HUMPHRY ROLLESTON, BART., K.C.B., M.D., HON. D.Sc., D.C.L., LL.D.,

REGIUS PROFESSOR OF PHYSIC IN THE UNIVERSITY OF CAMBRIDGE; PRESIDENT, BRITISH INSTITUTE OF RADIOLOGY.

Introduction.

In December, 1895, the late Professor W. K. von Roentgen of Würzburg, by what has often been described as a fortunate accident when working with a Crookes's tube, forestalled Crookes and others who were working on the same lines and within measurable distance of the momentous discovery of x rays. Radiology is therefore barely thirty-two years old, and many of us can compare the face of medicine now with what it was in the days that were earlier. It is to the credit of our profession, often conservative in adopting new ideas and advances, such as those so long advocated by Lister, that the first practical application of x rays was in surgery and medicine.

Youth has the advantage of enthusiasm and a more or less uncharted field of inquiry before it, and the advances in medicine made by radiology in such a comparatively short time have been revolutionary, thus contrasting with the changes made in the practice of medicine by the discoveries of percussion by Leopold Auenbrügger (1761) of Vienna, and of auscultation by Laennec (1819), which were slow to take effect. In the preface of the English translation of Laennec's *L'Auscultation médiate* (1821), Sir John Forbes hazarded the prophecy, which indeed was fairly correct, that its general adoption was extremely doubtful. The history of the ordinary method of physical signs when compared with the dramatic rise of radiology and its new revelations suggests some thoughts. Radiology, like bacteriology, so frequently appears to clinch the diagnosis in a case which still remains doubtful as the result of ordinary physical examination, that when an x-ray department is available there is a tendency to fly at once to it for a solution, without going systematically through the time- and thought-consuming process of routine examination. This is the easy path and line of least exertion which the student, resident, or busy physician may naturally pursue; but unless and until radiological outfit becomes, like the wireless or the low-priced motor car, within the reach of all medical men, there is a nemesis before the man who leaves the well equipped hospital to practise in some distant and isolated district where he, perforce, has to rely on his own resources, and finds that for him physical signs are a lost art. Since this siren-like call of radiology thus has a potential influence for harm, clinical teachers must set a useful example of exhaustively investigating all other available methods of ordinary examination before invoking the aid of radiology.

There are three personal aspects of radiological work to which reference may be appropriate: (1) the position of radiologists in the medical profession, (2) the physical

* The lecture, which was delivered before the Röntgen Society and the Electro-therapeutic Section of the Royal Society of Medicine on June 30th, has been slightly abridged.

effects of radiations on patients, and (3) the physical effects of long-continued work in radiological departments on those thus engaged.

1. *The Position of Radiologists in the Medical Profession.*

It is natural that there should be a wholesome rivalry between the pure clinicians and the radiologists, analogous to that between the clinicians and the laboratory workers, as to who shall be regarded as the decisive makers of the diagnosis; it is therefore important that clinicians and radiologists should be in constant touch and consult frequently on equal terms, each thus acquiring the special knowledge and perspective of the other. Like the bacteriologist the radiologist should form part of the team for clinical practice and research, and should not be segregated in his department. The radiologist is the helpful colleague of the clinician, and they are both judged as regard their accuracy or mistakes by the conditions found on the operating table or in the *post-mortem* room; it is therefore most essential that the radiologist should, like the clinician, follow through to final demonstration the cases on which he has expressed an opinion, and be imbued with pathological knowledge. Indeed, radiology enables them to see through a clinical telescope and so, like the operating surgeon, though with less inconvenience to the patient, to demonstrate "the pathology of the living." To discover the pathology of the living correctly is the aim of diagnosis, and to do so demands a thorough knowledge of morbid anatomy as it appears in the *post-mortem* room. By their attendance, as far as their many engagements will allow, at operations and at necropsies, and by checking their films with the lesions revealed there, radiologists will not only greatly improve their powers of interpretation and diagnosis, but will strengthen their alliance and reputation with their professional colleagues, for in this way their experience will become unrivalled.

There are also the important factors of maintenance of a high standard of efficiency and unity of aim within the specialty of radiology to be considered; those, such as the late Sir Archibald Reid, who had the future of radiology most at heart were insistent on the establishment of diplomas in radiology, such as those subsequently instituted at Cambridge (1919), Liverpool (1920), and Edinburgh (1926). This is a valuable means of insuring a thorough education and training for future radiologists, and is fulfilling its object. There has been a want of a central institute where all persons interested in radiology—medical men of all kinds, physicists, technicians, and manufacturers—can meet, on the common ground of the advancement of radiology, to discuss all matters of radiological interest, to exchange knowledge and take combined action, when necessary; where teaching can be centralized and research facilitated; where a library of books of reference and periodicals and an ever-growing collection of films are available; and generally to further the development and welfare of radiology. With these objects the British Institute of Radiology, incorporated with the Röntgen Society, was, after long-drawn-out discussions, finally established. The Articles of Association provide that "no member or associate who is not a registered medical or dental practitioner shall accept patients for diagnosis or treatment except under the personal supervision of a registered practitioner" (Article 12), and, on the action and with the approval of the General Medical Council, Section 3 (c) of the Memorandum of Association, which provides for granting diplomas and certificates of merit and efficiency, has been amended by the addition of the following words: "and that the holder of such diploma or certificate is not thereby entitled to undertake the medical diagnosis or treatment of patients except under the personal supervision of a registered practitioner."

With the rapid growth of radiology it is already becoming clear that specialism inside this branch must be anticipated, and that the radiological technique necessary for the dental, urological, neurological, and other special departments will inevitably lead to these subjects becoming the life's work of certain men; as this will provide opportunities for intensive study and the accumulation of more accurate knowledge it should be welcomed as evidence of the success of radiology in the present, and of its promise in the future. Not only will patients benefit by this increase of efficiency, but in certain branches, for example pyelography, their comfort and safety depend on special knowledge and technical skill.

2. *The Physical Effects of Radiations on Patients.*

The untoward effects of radiations on patients are usually acute and in the form either (1) of burns and epilation as a result of excessive dosage, or possibly in very rare instances from idiosyncrasy, or (2) of acute constitutional symptoms which have become more prominent since the introduction of intensive *x*-ray treatment of deep-seated abdominal malignant disease. The production of burns and dermatitis may entail legal actions for compensation, and a blow to the *x*-ray worker's reputation. Although the untoward effects of irradiation are usually acute, patients frequently exposed to radiations may become gravely anaemic; but in the cases thus treated it is often difficult to decide between the influence of (*a*) radiations on the haemopoietic tissues, and (*b*) of the involvement of the blood-forming tissues by the disease from which the patients are suffering; thus infiltration of the bone marrow by malignant disease or lymphadenoma, or leukaemic change, may be regarded as responsible; cases of aplastic anaemia after *x*-ray and radium treatment for chronic leukaemia have indeed been reported (Ross, 1925; Whitcher), but are open to alternative explanations.

The acute constitutional symptoms (Roentgen-ray intoxication; radio-toxaemia) are of several degrees. The comparatively mild symptoms of malaise, lassitude, loss of appetite, nausea, and occasional vomiting, compared by Béclère (1921) to sea-sickness, have been ascribed to the effect of ozone and noxious nitrous gases in ill ventilated *x*-ray departments; on the other hand, they may be minor results of the process responsible for the graver manifestations. A distinction has been drawn by Mallet and Colie between (*a*) the immediate and comparative mild effects, which usually pass off in forty-eight hours, and (*b*) the more severe constitutional symptoms with delayed onset, fortunately uncommon, and consisting of uncontrollable vomiting, offensive diarrhoea with the passage of blood, abdominal pain and distension, fever which may reach 104° F., profound prostration, progressive cardiac failure, and sometimes a fatal issue. These grave symptoms have been explained in several ways; experimentally it has been shown by Whipple, in collaboration with Hall and with Warren, that massive doses of *x* rays over the abdomen produce a primary epithelial necrosis in the mucous membrane of the small intestine, which may be entirely responsible for a non-specific intoxication (that is, not due to any constant bacterial infection). According to Mottram and Kingsbury (1924) necrosis is preceded by interference with the production of mucus and invasion of the mucosa by bacteria, which pass into the blood, and thrombopenia follows. Another view is that there is a general flooding of the circulation with protein products of cells destroyed by the action of radiations, and that the intestinal lesions are secondary. That intensive penetrating radiation of the abdomen is prone to be followed by the severe constitutional symptoms is confirmed by clinical experience, and it would seem reasonable to believe with Whipple that the intoxication is derived from the intestine; on the other hand, the occurrence of these same symptoms after irradiation of large tumours in the neck and mammary region shows that extensive cell destruction in parts of the body other than the abdomen may have a similar toxic effect. It has also been suggested that acute constitutional manifestations are anaphylactic and due to sensitization to proteins liberated by leucocytes and other tissues damaged by a previous radiation. That this is not applicable to all cases is proved both experimentally (Hall and Whipple) and clinically by the occurrence of acute symptoms after the first irradiation (Edsall and Pemberton).

The Alleged Stimulating Effect of Radiations.—The beneficial effects of irradiation on ovarian disorders have been ascribed to a stimulating influence, but the recent work of Parkes, Fielding, and Bramwell seems to show

that it is due to a compensatory regeneration of ovarian tissue after the ovaries have first been destroyed by irradiation. The conclusion of Desjardins that any apparent stimulating effect of radiations is a temporary phase only, and is invariably followed by more or less pronounced functional or organic deterioration, is probably correct.

The view that small doses of radiations stimulate malignant growths to greater activity, put forward by Wintz and Seitz, and used as an argument in favour of a large dose of radiations, is supported clinically by the occurrence of cases showing more rapid growth after radiation; this, however, may be an argument of the *post hoc, propter hoc* kind, for increased size of a tumour after radiation may, as Ewing pointed out, be due to factors other than increased activity of the malignant cells—for example, to vascular engorgement, infection, or serous and haemorrhagic infiltration. While increased proliferation of the neoplastic cells as a result of direct stimulation by radiations appears from numerous observations to be improbable, it is reasonable to believe that damage done by radiation to the surrounding stroma, whereby their defensive powers are inhibited, may explain increased spread of a growth after irradiation. Finally, we reach the conclusion that there is no convincing evidence in favour of the view that small doses of radiations directly stimulate neoplastic cells to more active growth.

Method of Action of Radiations on Malignant Growths.—The views of Bashford, Murphy and Nakahara, and Ewing to the effect that the malignant cells are not acted upon directly by the radiations so much as indirectly by the increase of the defensive activities of the surrounding tissues, through fibroblastic proliferation, lymphocytic massing, and obliteration of the vascular supply, are in opposition to the conclusion that the malignant cells are killed outright by the radiations. The influence of a general metabolic effect, induced by radiations, on the local tumour, was raised by Opitz and Kok, and there is the possibility that cytolysins produced in the tumour may play a part, but Lumsden's recent work is in opposition to this attractive idea.

[The varying radio-sensitiveness of tumours and of their constituents (malignant cells and stroma), and Bergonié and Tribondeau's law as to the greater radio-sensitiveness of undifferentiated cells, such as lymphocytes, than of the more highly developed cells, such as columnar-celled or the keratinized squamous-celled carcinomas, were mentioned, and a distinction was drawn between the two aspects of the changes in the cells and in the stroma. The initial radio-sensitiveness of a tumour and the later acquired resistance after repeated radiation were also discussed, and Roussy and Ewing's views as to the explanation were quoted. The possibility of rendering malignant cells specially sensitive to radiations by artificial means, such as impregnation with lead, was mentioned.]

3. *The Physical Effects of Long-continued Work in Radiological Departments on those thus Engaged.*

Soon after the discovery of *x* rays the harmful effects on the operators and patients became known; in March, 1896, information arrived to the effect that Edison and Dr. W. J. Morton had suffered with conjunctivitis as the result of some hours' exposure (*Nature*, 1896, liii, 421). The skin lesions, *x*-ray or radio-dermatitis, were noticed in the same year, and in 1897 D. Walsh first directed attention to acute constitutional symptoms by describing them in *x*-ray workers, in one of whom the symptoms disappeared when the abdomen was shielded by lead. Since then a very considerable literature has grown up on the subject of the untoward effects of radiations. In 1911 Krause stated that fifty-four fatal cases of cancer had been traced to radiations, and in 1922 Ledoux-Lebard estimated that one hundred radiographers had paid this penalty. In addition, sterility, first noted by Albers-Schönberg, is now fully recognized physiologically and therapeutically; in 1905 Brown and Osgood found unsuspected sterility in eighteen persons employed in manipulating *x* rays from half an hour to four hours three times a week for from two to six years—a somewhat startling revelation.

The blood changes in *x*-ray and radium workers—namely, anaemia, leucopenia, and lymphopenia—are of special importance as they can be detected in an early stage, and so further progress, towards grave aplastic anaemia, can be prevented by cessation of exposure, this method of early recognition and prevention being analogous to that practised in lead workers. The leucopenia immediately following irradiation is due to destruction of leucocytes in the circulation, as is shown by their remains seen in blood films, whereas the prolonged leucopenia is the result of injury to the haemopoietic tissues. The two grave blood disorders seen in persons long exposed to radio-active substances are acute aplastic anaemia and leukaemia, of which Jaulin has recently collected nine and eight examples respectively. It is generally believed that the radiations act by producing aplasia of the bone marrow; but from experiments on guinea-pigs Fabricius-Moller believes that a large dose of *x* rays first produces the leucopenia and then, after a week, thrombopenia with the haemorrhagic diathesis, and that the anaemia is due to haemorrhages; Knud Faber, however, contends that if this was the sequence of events the colour index in the experimental animals should be very low, which is not the case, as indeed Fabricius-Moller admits. The occurrence of leukaemia was ascribed by Weil and Lacassagne to a stimulating action of radiations on the bone marrow—an explanation which raises the vexed question of the existence of a stimulating influence of radiations.

Considering the relatively larger number of *x*-ray workers, radium appears to have a rather undue tendency to cause aplastic anaemia. The leukaemia cases appear to be almost confined to *x*-ray workers, for there has been only one exception—the case of myeloid leukaemia reported by Weil and Lacassagne in a thorium worker.

The personal knowledge that peptic ulcer of the stomach and duodenum and malignant disease of the alimentary canal have occurred in radiologists of long experience, coupled with the gastro-intestinal lesions of the acute constitutional symptoms occasionally seen after intensive applications of *x* rays to the abdomen, naturally arouses the suspicion that there may be more here than mere coincidence. It is true that peptic ulcer is rather frequent in medical men who are not radiologists, and also that radiologists may, like other medical men, suffer as the result of irregular meals and too regular smoking. Experimentally massive *x*-ray exposures of the abdomen cause acute damage of the intestinal mucosa, and Lazarus-Barlow obtained similar results with the gamma rays of radium; it might therefore be thought that less severe though long-continued exposures might favour chronic inflammation. By the rather extreme procedure of opening the stomach and exposing the mucous surface to *x* rays, Wolfer produced a chronic gastric ulcer. Though peptic ulcer cannot be regarded as a radiologist's disease, it may be worth while to bear these possibilities in mind.

Protection of X-Ray and Radium Workers.

Soon after the recognition that prolonged exposure to *x* rays carried with it ill effects Sir James Mackenzie-Davidson, to whose memory this lecture is so appropriately devoted as the pioneer of British radiology, showed before the Röntgen Society a simple method of enclosing the tube in a wooden box very thickly coated with a mixture of red and white lead with a suitable opening for the exit of the rays; he also made casts of plaster-of-Paris mixed with red lead to surround the tube, which were very effective in screening the operator. But it was not until much later that any steps at systematic and formal recommendations on the vital subject of protection of *x*-ray and radium workers were taken.

The long list of deaths and mutilations among the early pioneers of medical radiology was brought prominently to notice by a succession of deaths from aplastic anaemia, among them that of the lamented William Ironside Bruce on March 26th, 1921. As a result of this it became obvious that some authoritative advice on how to render the practice of radiology safe for those constantly engaged in this branch of the profession was not only urgently needed but overdue. Accordingly there was set up in April, 1921, a committee containing physicists and radiologists

nominated by the National Physical Laboratory, the Röntgen Society, which early in the war (in 1915) devised methods of protection, the Electro-therapeutic Section of the Royal Society of Medicine, the British Association for the Advancement of Radiology and Physiotherapy (now the British Institute of Radiology), the Institute of Physics, and the Radium Institute of London, with a representative of the manufacturers' interests, and Professor S. Russ and Dr. Stanley Melville as honorary secretaries. It appeared desirable that the members of the committee should all be resident in London, as the urgency of the matter necessitated frequent and prolonged meetings, and it was therefore reluctantly felt that it would be hardly possible to ask radiologists in the country to make the necessary sacrifice. No time was indeed lost, for the committee issued its recommendations in July, 1921, and after a second revised report in December, 1923, when the amount of preliminary discussion had become much less exacting, the members co-opted three leading radiologists from Edinburgh, Manchester, and Liverpool, in order to strengthen their hands. A third and expanded report, containing a section on ultra-violet therapy, is now in the press. It is not generally known how much radiologists owe to the National Physical Laboratory and the Röntgen Society for the help and the funds necessary for printing and distributing these reports, several thousand copies of which have been sent out to hospitals all over the United Kingdom. Arrangements were made whereby, when requested, experts from the National Physical Laboratory inspected *x*-ray departments to report whether the protection provided conformed to the recommendations of the committee. After some not unnatural hesitation, as this country was the first to insist on the need for such protective measures, British manufacturers adopted the recommendations, and their reception has been generally satisfactory; thus the early changes in the blood have been shown to be prevented by the adoption of protective precautions. The Ministries of Health and of Pensions in this country have given their support, and other countries, such as the United States of America, Norway, Holland, and Russia, have issued recommendations following fairly closely the lines laid down by the committee. It is desirable, as Kaye has urged, that international agreement, at any rate on the main questions of protective measures, should be secured. On February 1st, 1924, the Home Secretary issued an order extending the scope of the Workmen's Compensation Act, 1906, to include radiodermatitis, which thus becomes one of the industrial diseases scheduled as entitling to compensation.

There has naturally been some criticism of these recommendations—for example, by Glocker and Altschal—but it is noteworthy that this has been directed to show that the protection recommended errs on the side of excess and not of omission; thus it has been asserted that some of the regulations, though they may apply to large busy *x*-ray departments, are much more than is necessary in the departments of small hospitals, and that the amount of protection as measured in millimetres of lead is not only cumbersome but excessive in the experience of some well known radiologists. In answer to these objections it may be said that the recommendations are directed to render the practice of radiology safe for all those so engaged, and that any system of "graded" protection, for use in *x*-ray departments of different activities, would, as pointed out by Kaye, be difficult and open to the risk of misinterpretation, and so favour the occurrence of the evil effects which the recommendations are designed to prevent. An important reason for the maintenance of a high standard of protection is that the use of *x*-ray installations is far from being entirely in the hands of experts and medical men. The ever-extending use of *x* rays will entail installations of special characters in factories and industrial workshops, and it is obviously important to leave no loophole whereby the employees may eventually be seriously damaged.

As there is not yet any agreed standard unit of *x*-ray intensity that can be safely borne by everyone, it has been necessary to calculate the protective thickness of lead so as to cut off all the rays. In other words, the recommendations are worked out from the physical point of view so as to ensure complete protection from irradiations, and not from the biological and clinical standpoint of limiting the amount of irradiation to what can safely be borne by the average individual. As yet there is not any international standard *x*-ray unit, though an International *X*-Ray Unit Committee, with representatives from seventeen countries, set up at the International Congress of 1925, is at work on it. The question of the measurement of the dose of radiations has recently been reviewed with a full bibliography by Gunsett, and Mutscheller has tried to devise formulas to establish physical standards of protection against the dangers of *x* rays whereby the average safe dose of radiations to which an *x*-ray worker may be constantly exposed can be calculated; but even if the quantity of *x* rays expressed in terms of the unit skin dose, which experience shows can be safely tolerated for years by some radiologists, could be satisfactorily determined, there is still the question of idiosyncrasy and acquired supersensitiveness to be taken into account. It is important that the recommendations for protection should be based on the principle of absolute safety first, and err, if they do so at all, on the side of excess, so that, as Melville argues, the life of an *x*-ray worker should, from an assurance point of view, be a perfectly suitable risk.

Idiosyncrasy.

Although in the early days of *x*-ray work the radiations were weak as compared with those now available from the Coolidge tube, many of the pioneers suffered severely, while others, although they did not take any further precautions, escaped. The much discussed question of personal idiosyncrasy to radiations has been impartially considered by Colwell and Russ, who quote the answers to Arcelin's *questionnaire*: among radiologists of repute seven believed in its existence and six took the opposite view. Mackee, who defines idiosyncrasy as a severe reaction to a very small dose—one-quarter to one-sixteenth of the unit skin dose—considers it very rare, as he has not seen an example in twenty years' work. The opinion of Dr. A. E. Barclay and Mr. Hayward Pinch, which I am allowed to quote, is to the effect that extreme supersensitiveness is rare, and that the real explanation of many reputed examples is undue exposure or faulty technique.

Speaking generally, idiosyncrasy may be congenital or acquired, and may be supersensitiveness, which is that usually implied, or in the reverse direction—namely, insensitiveness. While radiations of sufficient strength and dose will produce reactions in everyone, there is considerable variation in the susceptibility of different persons. Those with light hair and a fair skin give reaction more readily than brunettes—no doubt from the small amount of protective pigment in the skin. According to David, a normal person gives a distinct *x*-ray erythema, whereas some individuals, probably from a different constitution depending on endocrine influence, give quite a different pathological reaction. Mackee and Eller tested 220 persons with 1/4, 1/2, and 3/4 of the unit dose of *x* rays, and found that 11, or 5 per cent., developed erythema with 1/4, 31, or 14 per cent., with 1/2, and 54, or 25 per cent., with 3/4 of the unit dose. It would appear to be impossible to deny the occurrence of an inborn supersensitiveness to radiations, though extreme degrees may be very unusual.

Acquired supersensitiveness to radiations is well recognized in the case of the skin, and T. Lewis has shown that damage of the blood vessels by *x* rays leaves them in a curious condition of inability to respond to vaso-constrictor stimuli; this has been ascribed to injury to the Rouget cells. The occurrence of post-radiation telangiectases usually within two years, but sometimes longer delayed, even to fifteen years, is well known. They are probably always preceded by an erythema, which, however, may be very slight. The same individual may react differently at different times; Mottram (1924) has shown that an increased blood supply, such as is caused by heat, sunburn, or other factors, makes the skin more prone to react to radium, and, according to Knox, this may be due to secondary radiations in the iron of the haemoglobin.

Supersensitiveness developing after exposure to radiations has been described both in patients and radiologists. M. and G. Giraud and Parès recorded a case of myeloid leukaemia in which, after tolerance for the long period

of five years, attacks of constitutional disturbance followed *x*-ray exposures of diminishing strength. The symptoms—intense nausea, copious vomiting, general malaise, vertigo, and dyspnoea, with a fall in the leucocyte count and of the blood pressure—were regarded as anaphylactic and due to sensitization to the products of the disintegrated leucocytes. I have seen a similar sequence in a case of chronic lymphoid leukaemia which was fatal. According to M. and G. Giraud and Parès, after a holiday radiologists may become supersensitive from accumulation of antibodies and die, but no statistical proof of this startling statement is given. De Courmelles, after mentioning an *x*-ray mechanic who eventually became so sensitive to radiations that he had to give up his occupation, compares this experience with that of chemists who, after twenty or thirty years' exposure to ipecacuanha, become subject to asthma. Fortunately examples of acquired sensitiveness to radiations are so rare that the explanation of anaphylaxis, which has met with considerable opposition, cannot be pressed; for if this were the reason, the occurrence of allergic manifestations should be much commoner.

The Future of Radiology.

The great future of radiology is generally agreed to lie in the direction of its biological applications, and it may be safely prophesied that the science of biological physics, which presents physiological phenomena purely from a physical standpoint, and thus is the complement of biochemistry, though the partition may be thin, will thus be greatly facilitated. Just as the structure of the atom has been revealed by the use of *x* rays, so, it may be hoped, may the activities of the living cell be elucidated.

A few examples of further research already begun, which may in the future be of practical utility in medicine, may be mentioned. Thus the production by *x* rays of bactericidal fluorescence from the mineral fluorite (Newcomer) and from calcium phospho-tungstate (Peacock and Whitby) opens up a possible method of treating bacterial infections by injecting solutions of such inorganic bodies followed by radiations. Protection of the skin against the destructive action of *x* rays in cases in which deep radiotherapy is employed would be most desirable, provided the tumours or pathological conditions to be acted upon are not simultaneously made more resistant. Auer and Witherbee found experimentally that rabbits previously sensitized by injection of horse serum acquire in the majority of instances a remarkable resistance to doses of *x* rays that destroy the skin of normal control rabbits. In man this method might be of the greatest use in inoperable malignant disease by enabling much larger doses of *x* rays to be given than the skin can ordinarily stand, provided that the cells of the growth are not similarly rendered more resistant, a question which it would not be difficult to determine. A problem already mentioned is the sensitization of the cells of malignant tumours by artificial means so that they may be the more readily destroyed by radiations. Just as medicine is gaining by the cultivation of comparative pathology and medicine, so it is desirable that veterinarians should, as far as possible, work at comparative radiology and thus help human radiology.

DISSEMINATED SCLEROSIS:

*ETIOLOGY, SYMPTOMATOLOGY, AND OCCUPATIONAL INCIDENCE.**

BY

DOUGLAS K. ADAMS, M.A., B.Sc., M.D., M.R.C.P., F.R.F.P.S.,

ASSISTANT TO THE REGIUS PROFESSOR OF MEDICINE, GLASGOW UNIVERSITY; ASSISTANT PHYSICIAN, WESTERN INFIRMARY, GLASGOW.

THE problems presented by a study of disseminated sclerosis are so varied and intricate that I would prefer to direct attention to some aspects of the disease which, in view of recent work, appear to be specially important.

Etiology.

Though the disease was first described in 1832 by Cruveilhier[1] and extensively studied from the clinical standpoint by Frerichs,[2] Vulpian, Charcot,[3] Marie,[4] and other workers, it is only in very recent years that advances in the sciences of bacteriology and serology have rendered possible an experimental investigation into its etiology. In 1913 Bullock (Gye),[5] by injecting spinal fluid from a case of disseminated sclerosis, produced paralysis in rabbits. These results were confirmed and extended by Kuhn and Steiner in 1917.[6] They claimed to have passed the disease through a series of four guinea-pigs and two rabbits, and to have demonstrated spirochaetes in the heart blood and in the vessels of the liver. In 1919 Marinesco[7] confirmed these results, and found spirochaetes in the ventricular fluid of the inoculated animals. About the same time Siemerling,[8] Schuster,[9] and Speer[10] independently described spirochaetes in the brains of human subjects dead of the disease. In 1921 Blacklock and I[11] published a series of experiments in which paralysis had been produced in rabbits inoculated with material from seven cases, and in several instances transmitted from one rabbit to another. On two occasions the virus had been inoculated in Smith-Noguchi medium for fourteen days in the course of passage. At the same time Gye reported similar results.[12] In seven out of forty-two of our inoculated animals spirochaetes were found in the internal organs, and our subsequent endeavours have been to discover what part, if any, these spirochaetes play in the etiology of the disease. It was found that the ventricular fluid of a large series of normal control animals of various species contained spirochaete-like structures, which might constitute a serious source of fallacy. These were investigated and described, and it was shown that they differed morphologically from the organisms found in the internal organs of inoculated animals described above.[13] The possibility of a generalized spontaneous infection with spirochaetes had to be considered. In this connexion a large amount of work has since been done on the cutaneous spirochaetosis of rabbits due to *Treponema cuniculi*. In a paper shortly to be published in conjunction with McCluskie and Cappell evidence is advanced which goes to prove that this infection is purely local and cutaneous, and that *T. cuniculi* does not infect the deep organs. We are therefore of opinion that *T. cuniculi* can be excluded as a source of fallacy.

In addition to the above investigations, control work has been done on other pathogenic spirochaetes, including *T. pallidum*. We were fortunate also in securing the brains of seven patients who died of disseminated sclerosis, four of these being supplied by the courtesy of Dr. James Dawson of Edinburgh. A very large number of sections from various parts of these brains were stained by Jahnel's method, and no spirochaetes were found. The question, therefore, would appear to us to be an open one. There is at present no scientific proof that a spirochaete plays any definite part in the etiology of the disease. On the other hand, various facts have to be considered in regard to the hypothesis that the causal agent is a spirochaete. In the first place, there is the large mass of experimental evidence of numerous workers on the Continent, who state that they have demonstrated their presence in human tissues and those of animals experimentally infected. In the second place, there are the admittedly very great difficulties in demonstrating spirochaetes in the lesions of known spirochaetal diseases—as, for example, tabes dorsalis. A third consideration is one which should not be overlooked, and appears to me personally to be of great importance. What might be termed the natural history of disseminated sclerosis is suggestive of an infection with a spirochaete or some closely allied organism. I refer, of course, especially to the phenomena of onset with mild pyrexia, and the course characterized by exacerbations and remissions. In this connexion it should be noted that the first suggestion that a spirochaete might be the infective agent in the disease was made by Buzzard in 1911 on general considerations.[14]

* A communication to the Association of Physicians of Great Britain and Ireland.

In even a brief discussion the serological aspect cannot be omitted. The spinal fluid picture which we have found to be almost constant is a normal or slightly increased cell count, a normal protein content, a negative Wassermann reaction, and a positive reaction to colloidal gold.[15] This latter test, in conjunction with a negative Wassermann reaction, is, in my opinion, of undoubted value in the recognition of early cases of the disease.

Symptomatology.

As regards the symptomatology of disseminated sclerosis, I would like to emphasize one of the earlier manifestations. Retrobulbar neuritis is specially worthy of investigation and experimental research. In one of my cases of frank disseminated sclerosis in a woman aged 37 I obtained the following history. Fifteen years prior to the onset of gross symptoms she had suffered for a short time from bilateral retrobulbar neuritis, but in the interval had appeared to be in good health. Here we would appear to have a latency of infection comparable with syphilis. The occurrence of so-called idiopathic retrobulbar neuritis in a young and otherwise healthy adult should always be carefully investigated as a potential early manifestation of disseminated sclerosis.

Occupational Incidence.

So far I have referred chiefly to laboratory methods in the investigation of this disease. There are other channels into which inquiry may be profitably directed. It is of great importance not merely to study the natural history of a disease, but especially to investigate the circumstances under which the earliest manifestations appeared. The following observations are based on my personal experience of cases in the West of Scotland, and may be governed by conditions peculiar to the district. The majority of the patients I have seen with disseminated sclerosis come from the country, as opposed to the town. The incidence of the disease in this respect would appear to be in direct contrast to that of neuro-syphilis. The typical picture is that of a young adult, usually of good physique and with a healthy family history. It is excessively rare to find two cases occurring in the same family or in the same household—a fact which would point either to special personal susceptibility or to special exposure to infection. In this connexion the theory of insect transmission is worthy of investigation. Such a view has already received the support of Dreyfus[16] in a published paper and Kuhn in a personal conversation. The occupations which seem to me to render the individual most liable to infection are farming, woodworking, gamekeeping, gardening, byre-keeping, etc. Persons so employed are essentially earning their living in the open air in country districts. It is not only in these individuals that the disease seems specially liable to occur, but also in various members of their families. Recently McAlpine[17] has referred to the desirability of investigating this occupational incidence of the disease.

Admittedly such a history cannot be obtained in a proportion of cases, but when one realizes the apparent latency of infection, to which reference has already been made, the difficulties of ascertaining when and where the infection occurred will be immediately apparent.

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ON CERTAIN ADRENALINE EFFECTS AT THE MENOPAUSE AND THEIR SIGNIFICANCE.

(Preliminary Communication.)

BY

JOHN H. HANNAN, M.A., M.D., B.CHIR.CANTAB.,

LONDON.

IN two theses read by myself at Cambridge dealing with the causation and treatment of "flushing" at the menopause, and in a recently published monograph on the same subject (1), I have drawn attention to certain adrenaline effects observed during my researches.

Flushing Produced by Adrenaline.

Intravenous injections of 10 minims of a 1 in 1,000 solution of adrenaline chloride, in women complaining of flushing at the menopause, gave rise, in all cases, to an immediate attack of flushing which was in all respects identical with the attacks which occurred spontaneously.

In order to exclude the possibility of this experimental flushing being caused by an increase in blood pressure, or the painful stimulus of an injection, control injections were made of pituitrin and normal saline; in no instance did the control injections give rise to an attack of flushing. It would appear, therefore, that the production of flushing at the menopause by the intravenous injection of adrenaline is due to the specific action of this substance.

A consideration of the results obtained by observers, such as Petzetakis, on the effects of intravenous injections of adrenaline in normal individuals yields no evidence of the production of flushing by adrenaline in such individuals.

Increased Tonus at the Menopause.

Loewi's reaction—namely, dilatation of the pupil following instillation of adrenaline into the conjunctival sac—occurred in 40 per cent. of those women at the menopause upon whom the experiment was tried; the reaction was constant on eight consecutive days; only women who complained of flushing were selected for this experiment.

If adrenaline be instilled into the conjunctival sac of a normal individual no dilatation of the pupil occurs, owing to the destruction of the adrenaline (Dixon). In some diseases of the pancreas, however, where there is impairment of the secretory cells, certain adrenaline effects become more pronounced and dilatation of the pupil occurs; this phenomenon being caused, according to Loewi, by the absence of the restraining influence of the pancreas on the suprarenal glands, these glands being physiological antagonists. Bearing in mind, therefore, that pancreatic disease might be present in some of my cases, an examination of the urine was undertaken in those cases where the pupil reaction was positive; in no instance was evidence of glycosuria obtainable.

From my experiments it would appear that the sympathetic nervous system of women, who at the menopause complain of flushing, is in a condition of increased tonus. The menopause is, we know, associated with ovarian atrophy and loss of the Graafian follicles; furthermore, removal of both ovaries will produce a syndrome closely resembling the natural process: my research, therefore, would seem to indicate that the internal secretion of the ovaries and that of the suprarenal glands (medullary portion) are physiological antagonists.

The ovarian extracts which are available at the present time are unsatisfactory, but I have had some success in the treatment of flushing at the menopause by the subcutaneous administration of an extract of the whole ovary in combination with a dry extract of the corpus luteum, orally (2). In two of my cases, Loewi's pupil reaction has disappeared under ovarian substitution therapy.

The Significance of Adrenal Sensitiveness at the Menopause.

It would appear from my research that the flushings of the menopause are due to an increase in the tonus of the sympathetic nervous system at this time, this increase being caused by the absence of or deficiency in the restraining influence of the internal secretion of the ovaries on the

suprarenal glands. It would also seem possible that this sympatheticotonicity may account for some of the many symptoms, such as headache and sensations of tingling and numbness in the extremities, which make up the menopausal syndrome.

The use of Thyroid Extract at the Menopause.

Thyroid extract is frequently used at the menopause. As I have shown elsewhere (3), the intensity of the attacks of flushing at the menopause is increased by the administration of thyroid extract at this time; this phenomenon is to be expected if, as has been suggested by Goetsch, the internal secretion of the thyroid gland sensitizes the body cells to the action of adrenaline.

In my opinion, therefore, thyroid extract should not be given, as a routine, to women at the menopause.

The Use of Chloroform as an Anaesthetic at the Menopause.

There is considerable evidence that the syncope which occurs during the induction of chloroform anaesthesia is associated with fibrillation of the cardiac ventricles, and is caused by abnormal irritability of the heart muscle, in which the sympathetic nerve supply is involved. Cushny says that this ventricular fibrillation is possibly caused by reflexes through the accelerator apparatus, or by an increased secretion of the suprarenal glands. If, as I have shown, women at the menopause are sympatheticotonic, chloroform should be avoided as an anaesthetic at this time.

Following a suggestion made to me by Dr. W. E. Dixon, I have endeavoured to ascertain if women at the menopause are particularly susceptible to chloroform syncope; owing to the infrequency with which chloroform is administered in these days and the comparatively few cases of chloroform syncope which have been recorded with details of the menstrual history at the time of the accident, my researches into this question have hitherto been unsatisfactory. It is interesting, however, to remember that pregnant women, in whom the ovaries are present in a condition of increased activity, are extremely tolerant to chloroform.

The preparation of the active hormone or hormones of the ovary is attended with many technical difficulties, and I know of no satisfactory product at present on the market. I am satisfied, however, that some of the ovarian extracts which are available are effective to a limited and varying extent; but until an active substance, of standardized potency, is available, the clinical value of my observations must remain inconclusive.

Summary.

1. The tonus of the sympathetic nervous system of women at the menopause is increased.
2. The increase in tonus of the sympathetic nervous system is responsible for the vasomotor phenomena and, possibly, for some of the other symptoms which make up the menopausal syndrome.
3. The increase in tonus of the sympathetic nervous system at the menopause is caused by the unrestrained action of the suprarenal glands, the internal secretion of the ovaries being deficient or absent.
4. Thyroid extract should not be administered at the menopause, owing to its adrenal sensitizing action.
5. Chloroform should not be used as an anaesthetic in women at the menopause.

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Petzetakis: *Arch. des Mal. du Cœur, des Vaisseaux, et du Sang*, August 1926, p. 513.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RUPTURE OF THE HEART.

AN edentulous man, aged 71, was given a large cup of hot meat extract at 11 p.m., followed an hour later by a large cup of hot cocoa. He was found dead in bed at 1 a.m. At the *post-mortem* examination I found a rupture, 1 in. long, in the anterior wall of the left ventricle. The muscle was pale, flabby, and fibrotic. The stomach was enormously distended with air. I concluded that in sipping the hot liquids he had swallowed this air, and the consequent distension of the stomach embarrassed the heart sufficiently to tear it.

In the interesting paper by Drs. Strickland Goodall and Weir (May 7th, p. 834) there is a history of recently ingested food or fluid in seven out of fourteen cases; one would like to know the condition of the stomach in these cases, and whether flatulent distension was a contributory factor to the rupture.

London, W.3. H. STANLEY CHATE, M.B.

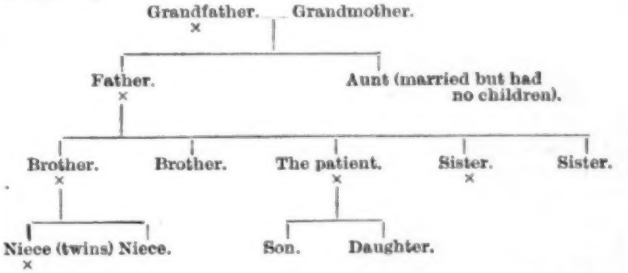
HEREDITARY DEFORMITY OF THE FINGERS.

A MAN, aged 22, presenting the following abnormality of the fingers, was admitted to Addenbrooke's Hospital in November, 1926, suffering from renal calculus.

The middle and terminal phalanges are shortened, the fingers being of the average breadth for an adult man. The body of each finger-nail is double. The two parts are separated by almost normal skin, which runs distally over the dorsum of the terminal phalanx and is continuous with the skin covering the tip of the finger. On either side of this median strip of skin nail tissue appears, of the normal texture and elasticity. The cuticle is present on each side and overlaps the nails in the usual fashion. The intermediate central part is harder than normal skin and bears longitudinal striations; it is, however, quite distinct from the nails. At the distal end there is the usual shallow transverse groove, where the free end of the nail should be. The little finger of the left hand approaches the nearest to normal. There is here a nail occupying three-fifths of the width of a normal nail. The man used to scratch this finger when a boy in order to make the nail grow.

The thumbs show this peculiarity in the highest degree. The nail bed on each side is represented by areas 2 mm. in width and 4 mm. in length, each containing a tiny nail. The nails all grow slowly, and seldom require cutting. The feet are normal.

The man stated that several members of his family have hands similar to his own. In the following table the persons marked with a cross are those who exhibit this deformity.



The patient could not trace his family further back than the grandfather, nor could he state whether the abnormality had ever been transmitted through one of the female members of the family.

I am indebted to Dr. J. Aldren Wright for permission to publish details of this case.

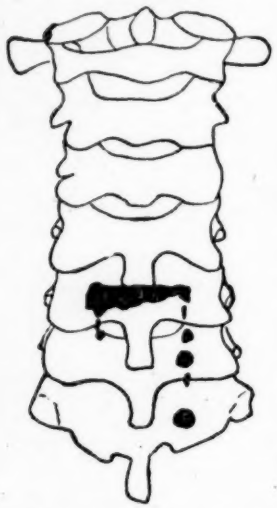
NOEL CHILTON, B.A., B.M., B.Ch.,
Late House-Physician, Addenbrooke's Hospital, Cambridge.
Southampton.

AN UNRECOGNIZED CASE OF FRACTURE OF A CERVICAL VERTEBRA.

THE following case presents some points which may be of interest:

A man, aged 38, was admitted to the Chester Infirmary in May, 1926, during the general strike, after being run over by a railway lorry, which crushed his chest. No fracture of the ribs could be found, and, as he had apparently quite recovered, he was discharged after a short stay in hospital.

On January 27th, 1927, he was again brought to the hospital, being unable to walk unsupported. He then told us that he had found difficulty in walking for the last six months, which he ascribed to a hernia, and for which he was claiming compensation. There was considerable loss of power in both arms and legs, and slight wasting in the thenar muscles. There was numbness in the cutaneous distribution of the ulnar nerve; a spastic condition of both legs, with a positive Babinski sign, well marked ankle clonus, and exaggerated knee- and arm-jerks. No definite loss of sensation was discovered, although, apparently, there was some impairment of both superficial and deep sensation in the arms and legs. The cranial nerves were not affected, and the optic discs appeared normal. The electrical reactions of the muscles were all normal.



An *x*-ray photograph of the cervical vertebrae showed some blurring about the left transverse process of the fifth. Lipiodol was injected through the atlanto-occipital ligament, and a definite block at the level of the centre of the body of the fifth cervical was indicated.

On February 25th laminectomy of the seventh to the fourth cervical was performed. On removal of the seventh and sixth the cord was found to be pulseless, but when the fifth lamina was lifted it began to pulsate freely. The membranes were not adherent, and, on moving the cord from side to side, we could find no marked projection of bone into the lumen of the canal, but this may have been present in front. The theca was not opened, and the wound was closed without drainage.

Three months later the numbness and wasting in the hand had disappeared. He could walk without the help of a stick, although his gait was still spastic, with increased reflexes, not, however, nearly so marked as before operation.

Chester. K. V. TRUBSHAW, F.R.C.S.Ed.

THE DIAGNOSIS OF GANGRENE OF THE SMALL INTESTINE.

HAVING read Mr. A. E. Roche's highly instructive communication in the BRITISH MEDICAL JOURNAL of June 4th (p. 1033), I should like to bring to notice a similar case which came under my care on June 5th.

A woman, aged 30, was admitted to Llwynypia, Rhondda, Hospital complaining of pain in the umbilical region and vomiting. The pain had begun a week before admission. The vomit at first was greenish; later it became dark brown, and had a faecal odour. The patient had had absolute constipation for a week previous to admission.

On admission the temperature was 99° and the pulse 120; the tongue was moist, but coated with a whitish fur, and the breath had a faecal odour. The abdomen was distended, and well marked visible peristalsis of small-intestine type was present. In the right groin was an ovoid swelling in the position of the femoral ring. It presented the physical signs of a fluid swelling. It was not tense or tender, but was irreducible.

A diagnosis of right strangulated femoral hernia was made, and having regard to the fact that the patient's general condition was not as grave as that usually associated with complete obstruction of the small gut, especially over so long a period, we came to the conclusion that it was a partial obstruction and strangulation of the Richter type.

An incision was made over the swelling, and a strangulated femoral hernia was found, involving a segment of small gut 2 inches long and about half the circumference of the bowel across. The sac was distended with serous fluid, which was not offensive. The bowel was dark purple and adherent to the sac in one place. The colour of the gut did not return to normal, but there was free bleeding on pricking, even of the areas which appeared most damaged. In the opinion of the operator the gut was viable, and was returned to the abdomen, and the operation completed in the usual manner.

During the forty-eight hours following the operation the patient did not pass faeces or flatus. There was no evidence of peritonitis beyond occasional hiccuping, and as the obstruction persisted it was decided to explore. The abdomen was opened and loops of distended small intestine immediately presented. There was no peritonitis. The affected loop of gut was lifted up, and it was found that it had completely recovered, and there was no obstruction of the lumen of the gut. The cause of the obstruction was therefore paralytic. Enterostomy was performed, about 12 inches proximal to the affected loop, and a tube about half an inch in diameter was sutured into the intestine by the internal cone method; for the next twenty-four hours the patient passed large quantities of faeces and flatus by the tube. In forty-eight hours the bowels began to act naturally, and in four days the tube was removed; the discharge from it had practically ceased. The enterostomy opening has now closed, and the patient has made an uninterrupted recovery.

The chief points of interest in the case seem to be: (1) the speedy recovery of the gut after having been strangulated for six days; (2) the reliability of bleeding of the gut as a sign of viability, in spite of its persistent discoloration.

I. G. DAVIES, M.B., M.R.C.P.Lond.

Llwynypia, Rhondda.

ACUTE LOBAR PNEUMONIA: RAPID DEATH.

I READ with interest Dr. Poston's account of a case of acute lobar pneumonia, death occurring in nine and a half hours (BRITISH MEDICAL JOURNAL, June 18th, p. 1098). It recalls to mind a similar case I had to deal with in Freetown, Sierra Leone, some years ago. It may be mentioned that the West African native has apparently little resistance to lobar pneumonia, and the death rate for that disease is high. In this particular instance the patient was a native of Freetown, an engineering artisan by trade, aged about 25 years. He returned from work about 5 o'clock one evening during the rainy season, and sat down to his "chop." Before he had finished his meal he complained of a sharp severe pain in his left side. This made breathing so difficult that he at once went to hospital, and as emergency officer I saw him at 6 p.m. A diagnosis of pleurisy and early pneumonia was made, and he was admitted and treated accordingly. He died at 11 p.m. I made a *post-mortem* examination next morning and found both lungs in a state of early grey hepatization, so that the total duration of the visible illness was only five and a half or six hours at the most.

Many natives die in the red hepatization stage from early heart failure, which is probably physical rather than toxic, for it must be remembered that the native heart is often much weakened by the overstrain of carrying heavy head loads, and by the toxins produced by helminthic infections, etc.

W. A. YOUNG,
Director of Medical Research, Gold Coast.

TRIPLETS: ECLAMPSIA: CAESAREAN SECTION: SURVIVAL OF MOTHER AND CHILDREN.

SOME five or six years ago I was called to see a lady, near London, suffering from severe eclampsia. She was a primigravida; the abdomen was enormously distended, and there was very marked oedema of the legs, abdomen, and vulva.

On my arrival the patient was quite unconscious. The urine was solid with albumin. She had had several severe eclamptic convulsions. The pulse was rapid and tension was very high. The temperature was 102.8°. It was evident that the pregnancy was multiple, and "twins with hydramnios" was diagnosed. The foetal heart sounds were quite normal. There was no indication of labour, and the cervix was closed. So grave was her condition (coma) that I decided on Caesarean section as the best means of saving her life. At that time it was "in favour"[1] as a method of delivery in eclampsia, and among my own cases of Caesarean section at Queen Charlotte's Hospital the results seemed fair, if not good. These cases have been published with others in the *Proceedings* of the Obstetrical Section of the Royal Society of Medicine. I was further influenced to do this operation as there was such great oedema of the vulva, which would have made delivery by the vaginal route difficult and tedious.

The operation was simple. So deep was the coma that an anaesthetic was not needed. There was considerable hydramnios and the large placenta was anterior (this is not uncommon). On opening the membranes two good-sized babies were extracted (girls), and then, to our surprise, a third child (a boy) was discovered in the lower uterine segment, and removed together with its placenta. This child was smaller than the twin girls, but appeared to belong to the same epoch of fertilization. The girls were uniovular twins (single fused placenta). There was free haemorrhage, but it was controlled by suture and the application of hot towels to the uterus. The uterus was sutured with linen thread, and the abdomen closed in the

[1] This is not the case now; vide *Proc. Roy. Soc. Med.*, etc.

usual way. The patient did very well afterwards, and regained consciousness in about twelve to eighteen hours. There were no more fits. The triplets also did well, and were nursed by breast and bottle.

I heard a year after that the mother and her babies had done very well, but that the girls were "ahead of their brother." It was not until May 22nd, 1927, that I had further news of them, when I saw a photograph of the three children as little attendants to a bride at a wedding at Twickenham.

C. HUBERT ROBERTS, M.D.Lond.,
F.R.C.S.Eng., F.R.C.P.,
Consulting Surgeon to Queen Charlotte's and Samaritan Free Hospitals.

London, W.1.

Reports of Societies.

MEDICO-LEGAL SOCIETY.

THE annual general meeting of the Medico-Legal Society was held at 11, Chandos Street, Cavendish Square, London, on June 23rd, the retiring President, Lord Justice ATKIN, occupying the chair. Sir William Willcox was elected President for the ensuing year, Lord Justice Atkin having announced that he would be unable to continue in that office. In a farewell speech, Lord Justice Atkin said the seven years during which he had been their President had seen a great development in the importance of the society. Their first President, Sir William Collins, in his inaugural address, had said their goal was the creation of a central medico-legal institute in London, and in his (his Lordship's) view there was no more fitting instrument to carry through such an important proposal than the Medico-Legal Society.

Confidences Reposed in Doctors.

Lord RIDDELL, in a paper on "The law and ethics of medical confidences," said the rule as to medical secrecy arose out of the fiduciary relationship which existed between the doctor and his patient, analogous to that between solicitor and client. In England there was a curious absence of direct authority as to the doctor's liability for failing to keep his patient's affairs secret. This was greatly to the credit of doctors as a profession. Had they been unduly communicative to the detriment of their patients, no doubt they would have found themselves in the Law Courts. There were, however, analogous cases which showed that the courts regarded professional secrecy as a grave moral duty, which would be enforced either because disclosure would be a breach of trust and confidence, or because secrecy was an implied term of a contract for professional or confidential services. The duty had been enforced against solicitors, accountants, and bankers, and they were entitled to assume that a doctor also would be legally liable if he wrongfully disclosed his patient's confidences, whereby damage resulted. In France and Germany the disclosure of medical secrets was a criminal offence. The legal position in England could be stated in four propositions: (1) A doctor, being in a fiduciary capacity, must preserve his patient's confidences unless relieved from the obligation by some lawful excuse; (2) legal compulsion or the patient's consent were lawful excuses, and the performance of a moral or social duty might also be a justification—protection of the doctor's interests might also justify disclosure; (3) there was no legal privilege for medical confidences—called as a witness a doctor must answer such questions as might be put to him by the Court; (4) a doctor shared with other citizens the duty to assist in the detection and arrest of a person who had committed a serious crime. By a breach of the rule not only might the doctor render himself liable in damages, but he might also be censured by the General Medical Council for unprofessional conduct. Doctors were entitled to claim with justice that professional confidences regarding vital matters, such as venereal disease, "unofficial" pregnancies, attempted abortion, and the like, were rarely divulged, and if a doctor gossiped he only did so in connexion with matters he regarded as immaterial. Some doctors thought they were entitled to disclose their private patients' secrets to other medical men, or to their students. This was a mistake. Medical freemasonry did not justify such disclosures. The symptoms and treatment might be stated, but not the patient's name.

The disposal of doctors' case books raised an interesting point. Was the doctor entitled to sell them? And what were the responsibilities of the purchaser, and what were those of the doctor's executors? Many years ago he (the speaker) bought a doctor's case book in a secondhand bookshop for sixpence. Evidently it had been sold as waste paper, or as part of a library. He supposed, strictly speaking, a doctor or his executors were not entitled to part with his case books containing professional secrets, and that, in strictness, the books should be destroyed. But in these days, when it had become the practice to dig up the medical histories of the departed, the destruction of the case books of leading practitioners might rob future generations of much interesting information. Whether these revelations were justifiable was another matter.

As to the second proposition, legal compulsion was admittedly a lawful excuse, whatever it might be from the point of view of medical ethics, but when they came to the performance of a moral or social duty they were faced with serious problems. The speaker gave a number of hypothetical cases, and asked the question whether the doctor had a moral or social duty to disclose. In Weld-Blundell *v.* Stephens [1920] AC 956, the judges agreed that disclosure of a confidence would be justified when there was a duty to the public to disclose. When a doctor was employed by A to examine and treat B, the doctor was apparently entitled to make a report to the person employing him; the position of a family doctor might differ from that of one consulted *ad hoc*; a doctor attending an infant might be entitled to communicate with his parent or guardian; and the position of a hospital patient differed from that of a private one, inasmuch as there was no contract between the doctor and the patient. Such a patient's rights to secrecy were not well defined, but it was conceived that the medical staff were under obligation to the patient not to disclose matters of delicacy, at any rate outside the institution. In the French code the director of a hospital was specially prohibited from disclosing professional secrets relative to the safety of patients or family honour.

As to the general question, What should a doctor do when he perceived that grievous injury might result to a third party if he refrained from making a disclosure of a professional confidence? there was much to be said for a distinguished lawyer's suggestion that in certain cases disclosure might be justified on the ground that the object was to prevent the patient from doing a wrongful act. If a doctor gave the warning he might get no thanks, he was certain to incur the serious displeasure of his patient, and he might find himself faced with legal proceedings. On the other hand, his conscience might worry him if he stood by and allowed an innocent person to run a serious risk which might be prevented by a word of warning. Moreover, in some cases, if he remained silent he might run the risk of incurring public or private odium and censure. No practical rule could be laid down. It all depended upon the individual and the particular case.

As to his third proposition strong objection had been raised by doctors to answering in the witness-box questions involving a disclosure of professional confidences. The claim was that such confidences were, or should be privileged in the same fashion as communications between solicitor and client—and not only medical men but distinguished lawyers supported it. Medical men were inaccurate in stating that spiritual advisers were protected from disclosure in courts of justice, and, in any case, the claim to spiritual privilege was based on legal grounds which had no application to the medical profession. Also, there seemed to be some misapprehension in medical circles as to the privilege accorded to communications between solicitor and client. The privilege was that of the client and not of the solicitor, who himself had no privilege. The solicitor must not disclose professional communications in the witness-box unless with the consent of his client, but they must be revealed if the client so desired. There was also a misapprehension that privilege attached to communications made by a client for a fraudulent or criminal

purpose; for instance, if a solicitor were questioned as to the most skilful mode of effecting a fraud. The case for medical privilege was put thus. Medical confidences were sacred. Therefore they should be treated as such in all circumstances. Medical efficiency was a public necessity. To secure it patient and doctor must be assured that their communications would not be disclosed. Truth in litigation might cost too dear. In the interests of the community at large it was more important to maintain the sacred character of confidential relationships than to secure accuracy in a few law cases. On the other side it was claimed that it was undesirable to increase the limitations on evidence, that the existing system had caused no injustice or inconvenience, that there had been no public protest against it, that there was no evidence that fear of disclosure deterred patients from confiding in their medical advisers, that the confidences of criminals could not properly be subject of privilege, and that, eliminating such confidences, there were but few occasions on which disclosures detrimental to the patient were required.

Any change in the law would require to be made by statute, and there was little chance that Parliament would alter the existing rule. Any such alteration would almost certainly be vigorously opposed by the law lords and judges. The whole tendency of legislation for many years past had been to simplify the law of evidence, and to remove restrictions which prevented the whole story from being disclosed to the court, and consequently it was extremely unlikely that Parliament would be prepared to add to such conventions as still existed. On balance, it seemed most undesirable that fresh privileges should be created which might have the effect of obscuring the truth.

As to his last proposition, Lord Riddell said that the law was clear, for a person who, knowing a felony to have been committed by another, relieved, comforted, or assisted the felon, was an accessory after the fact. There was also the offence of misprision of felony, which consisted in failure to inform the police that a felony had been committed. It was an obsolete offence, however, and obviously it was no part of a doctor's duty to act as a private detective. They must, however, bear in mind Mr. Justice Avory's comments in 1914 upon the fact that not one of three medical men who attended a woman who died as a result of an illegal operation gave information to the police. The judge said under such circumstances it was the duty of medical men to communicate with the police so that steps might be taken to assist in the administration of justice. This pronouncement led the Royal College of Physicians to pass resolutions, in which they said a moral obligation rested upon every medical practitioner to respect the confidences of his patient, and that without her consent he was not justified in disclosing information obtained in the course of his professional attendance on her; he should urge her to make a statement which could be taken as evidence against the person who performed the operation, provided her chances of recovery were not thereby prejudiced, but he was under no legal obligation to take further action. The British Medical Association interviewed the Lord Chief Justice, the Attorney-General, and the Public Prosecutor, the latter official explaining that the authorities desired that medical men should report abortions, attempted or procured by third parties, when the doctor was of opinion that the patient was likely to die, but the British Medical Association adopted the same attitude as the College. This view did not meet with universal medical approval, however, and considering the prevalence of abortion the leaders of the profession were undertaking a serious responsibility in advising practitioners in such emphatic terms to disregard illegal acts of a most pernicious character. Whilst everyone recognized the necessity and importance of medical confidences they must also recognize that the rules regarding these existed for the welfare of the community, not for the aggrandisement or convenience of a particular class.

Sir WILLIAM COLLINS said the Hippocratic Oath could be put tersely: "I undertake that I will not divulge what I ought not to divulge," and did not settle the problem with which they were faced. In one class of case it might be the duty of a medical man not to divulge even to the patient himself the disease from which he was suffering, whilst in another class of case it was the overwhelming duty of a medical man to tell his patient what he was suffering from. Sometimes there was a duty to disclose and sometimes not to disclose. It depended upon the circumstances of the case. As to the absence of a legal privilege not to disclose confidences on oath in the witness-box, he remembered Dr. Elliott of Chester being questioned about a patient attending a syphilis clinic, when it was pointed out in court that the regulations under the Public Health Act and the memorandum from the Home Office to medical officers of health insisted upon absolute secrecy by the doctor regarding any communications from the patient, in order that sufferers might be encouraged to attend for treatment. Dr. Elliott, in his view, was perfectly justified in refusing to answer, and he personally regretted deeply that Dr. Elliott did not go further than protest, and run the risk of contempt of court.

Sir WILLIAM WILLCOX was of opinion that, though a doctor could not become a private detective, yet where he was employed in a hospital and saw case after case of abortion arriving, and many deaths resulting, all from the same source, a grave responsibility was placed upon him and he should do something. If his powers of persuasion of the patient to make a clean breast of what had happened failed, then, perhaps, it was the doctor's duty to inform the authorities, but before doing so he should take legal advice, as it was more a legal than a medical matter. As to the position of a medical man in the witness-box, he had no choice, and the best attitude for him to take up was that taken up by the doctor in the Armstrong case, who, when asked whether the accused had had syphilis, at first refused to answer, but when ordered to answer, did so under protest. He (Sir William Willcox) thought that a fair and proper attitude.

PHARMACOLOGY AND CLINICAL MEDICINE.

AT a meeting of the Medico-Chirurgical Society of Edinburgh, held in the Hall of the British Medical Association, 6, Drumsheugh Gardens, on June 1st, with Emeritus Professor WILLIAM RUSSELL, President, in the chair, a discussion on the relation between pharmacology and clinical medicine was opened by Professor A. J. CLARK.

Professor Clark said that he would consider the subject from two aspects: first, the value of pharmacological research to medicine; and secondly, the value of pharmacology in the medical curriculum. The value of pharmacological research to medicine was to-day obvious to all. The most striking advances made by medicine during this century had been due to the introduction of such new drugs as the organic arsenicals or insulin. To-day drug therapy was one of the most rapidly growing branches of medical science. The importance of the recent advances in pharmacology was best evidenced by the change in general medical opinion during this century. Twenty-five years ago it was generally assumed that any new cure for a disease would be a serum or a vaccine, whereas to-day opinion turned in a similar manner to chemotherapy. It was, however, unfortunate that very few new drugs of importance had been discovered in Great Britain during this century, and that nearly all the new drugs were imported. This fact suggested that more attention should be paid to the organization of pharmacological research in this country. The great advances made in drug therapy had been increasing the importance of pharmacology as a subject of the medical curriculum, if for no other reason than that the new remedies were far too potent to be used with safety by those who did not understand them. If a broad view were taken of medical education, it would be seen that great advances had been made in the treatment of disease, and the question arose whether the medical curriculum did not require some adjustment to bring it more fully into line with modern medicine. A knowledge of the form of the body necessarily preceded a knowledge of its functions, and owing to this historical fact medical education was largely centred on a study of the form, as opposed to the study of the functions of the

body. At the same time, more attention tended to be paid to the diagnosis than to the cure of disease. In the future more attention should be paid to the study of disorders of the functions of the body, and to the means by which these could be cured. Just as anatomy served as a basis for morbid pathology, which again was the chief basis for the diagnosis of disease, so physiology was the science dealing with the normal functions of the body, while pharmacology showed how the normal or disordered functions could be modified, and thus served as a link between the science of physiology and the art of therapeutics. Professor Clark considered that the sciences dealing with the functions of the body should occupy a place in the medical curriculum at least equal to the place occupied by the sciences dealing with the form of the body.

Sir NORMAN WALKER discussed the different methods adopted by different schools in the teaching of materia medica. He thought it would be important if the teachers like Professor Clark would say what they thought was the proper place for pharmacology in the curriculum. Professor MURRAY LYON said that many other agents besides drugs must be considered. He referred to adrenaline, thyroxine, vitamins—substances that one could manufacture in the laboratory. Other speakers debated the question, Which is the more important—knowledge of the morbid anatomy, or knowledge of the derangements of function?

Reviews.

FRACTURES AND THE THOMAS SPLINT.

UNDER the modest title of *The Thomas Splint*,[1] Major MEURICE SINCLAIR has placed at the service of his profession a most valuable guide to the successful treatment of fractures. The reputation which he justly earned by his work at No. 8 Stationary Hospital in France was associated in the minds of many of us with the reputation achieved by Sir Robert Jones in the introduction of the Thomas knee splint for the first-aid as well as later treatment of gunshot fracture of the femur. It is therefore most fitting that the names of these two surgeons should be once more associated, as they are in this book, to which an appreciative foreword has been contributed by Sir ROBERT JONES. Those who know his writings and utterances will realize that he is bestowing the highest possible praise on Major Sinclair when he likens him to Hugh Owen Thomas in his "scrupulous attention to and mastery of mechanical detail and his zealous struggle for the salvage of a limb." We heartily agree with the concluding passage of the foreword, in which Sir Robert Jones urges that "every effort should be made to induce the author to repeat and repeat the demonstrations which he gave during the war. The treatment of fractures in this country leaves much to be desired, and a crusade of practical instruction would be of great service."

When every week brings its harvest of accidents on the road, culminating in a sharp "push" at its end, with a quota of casualties as large as would attend a severe skirmish of former days, it is more than ever necessary that surgeons, both in great towns and outside them, should have the necessary skill and knowledge for the treatment of severe injuries of the bones and joints. When it became known that owing to the use of the Thomas splint the mortality of compound fracture of the femur had fallen from 80 per cent. to 15.6 per cent.—in Major Sinclair's wards it was afterwards reduced to 7.3 per cent.—some surgeons were disappointed who had fondly thought that they had but to apply a Thomas splint and all would be well; they had not realized that there were certain details which were easily overlooked, but were essential for success. These surgeons were not to blame, when they had had no opportunity of learning the practical use of these splints. We venture to think that no one who reads this book carefully and puts into practice its lessons will fail to get good results.

But besides the Thomas splints for both upper and lower extremities, Major Sinclair describes various excellent appliances of his own devising for the treatment of fractures and also of amputation stumps.

Under the heading "Preliminary Considerations" some very useful hints are given on the question of amputation and on complications of fracture, which may result, among other disabilities, in ankylosis of a joint or joints. The least disabling position for such an ankylosis should always be sought after, and the advice given on these points is very sound. The chapter on the treatment of wounds of the soft tissues contains much of value. Major Sinclair is a convinced advocate of the method of dry dressing, and records the interesting observation that large quantities of irrigating fluid interfere with the nutrition of bone fragments, by washing away the serum, with the result that necrosis is more extensive in wounds so treated. The chapter on radiography in the treatment of fractures is full and useful. We have only one minute criticism to offer. In more than one place Major Sinclair recommends the use of a "timber hitch." This arrangement—it can hardly be called a knot—would act like a slip-knot, which is scarcely desirable. We wonder whether the author is thinking of the familiar clove hitch when he uses this (to surgeons) little known technical term.

[1] *The Thomas Splint and its Modifications in the Treatment of Fractures.* By Meurice Sinclair, C.M.G., M.B., Ch.B.Edin. With a foreword by Sir Robert Jones, K.B.E., C.B., F.R.C.S. Oxford Medical Publications. London: Milford, Oxford University Press. 1927. (Demy 8vo, pp. xiv + 168; illustrated. 15s net.)

SOCIAL HYGIENE.

THE third volume of the German handbook of social hygiene,[2] so called (it contains eight hundred large pages), edited by GOTTSTEIN, SCHLOSSMANN, and TELEKY, opens with an article on general social welfare work by Maier which is not, at least to an English reader, particularly attractive if informative. To tuberculosis almost 300 pages are devoted. First, Teleky deals with general etiology in a satisfactory way, being wisely sceptical of naïve attempts to deduce etiological conclusions from statistical parallelism. As he remarks, the usual statistical "proofs" of the influence of, for instance, housing "may have some value as propaganda, but have none as contributions to scientific knowledge." Teleky does not deal with war-time and post-war statistics, which are the topic of a separate article by Peller, who remarks that the great increase of mortality in Central Europe is not wholly explained by the shortage of food, for in Prussia the increase of mortality in 1916 in the rural districts was not much less than in the towns, although at that time the rural districts were not suffering from lack of food. In the next article Teleky takes up sanatorium treatment, and concludes that selection of cases, provision of maintenance for convalescents, continuous after-care and following up are essential if results are to be improved. He then deals with general measures, including notification, education of the public, etc. Simon discusses the measures specially applicable to children, and Volk has a short article on the treatment of lupus. This section ends with a series of notes on antituberculosis measures in foreign countries and various official documents.

Dresel's article on the alcohol problem is well written; the statistical documentation is good, and the author, although clearly of opinion that in such a country as Germany the tendency to resume previous habits (consumption of alcohol is, however, still far below the pre-war level) is a great evil, and that a great opportunity was lost, seems on the whole to have avoided the statistical temptations of partisans, and quite fairly to have stated the objections to the usual inferences. The last article in the volume is a treatise, extending to more than 200 pages, on venereal diseases and prostitution, by Hans Haustein. The historical introduction, which contains a particularly clear account of changes in official practice in

[2] *Handbuch der sozialen Hygiene und Gesundheitsfürsorge.* Herausgegeben von A. Gottstein, A. Schlossmann und L. Teleky. Band III. Berlin: J. Springer. 1926. (Sup. roy. 8vo, pp. viii + 794; 37 figures. R.M.54.)

Prussia, is well done. The author thoroughly justifies his conclusion:

"The failure of the four-hundred-year-long campaign is due chiefly to the frequent change of system, but also to the fact that each system always dealt with only one side of the matter. The attempt in the nineteenth century in Prussia, on a broader basis, to root out venereal disease also failed because there was no continuity in the measures."

The next section, after a brief clinical description of the chief venereal diseases, treats of the available statistics. The most interesting part is that in which estimates are made of the proportions of the populations of different cities who will at some time before death acquire syphilis. The method used is theoretically correct, provided we may assume that second attacks are negligibly rare, but the subject involves too many technicalities for it to be possible to discuss it in the course of a review. Similar calculations with respect to gonorrhoea seem to us practically worthless. The remainder of the article runs on familiar lines, but conveys a great deal of information respecting hygienic measures and regulations in Germany not easily accessible.

This volume, except perhaps the first article, is more readable than its predecessors, and attains a high standard. It is no doubt more likely to be used by those who have to prepare lectures than by the general medical reader, but it may fairly be described as a valuable contribution to literature.

MUSCULAR CONTRACTION AND THE CONTROL OF MOVEMENT.

Muscular Contraction and the Reflex Control of Movement,[3] by J. F. FULTON, is a very excellent book. It gives an account of the whole of our knowledge of the contractile process in striated muscle and its control by the nervous system. The author has made an attempt to bring into logical sequence nerve-muscle physiology, reflex activity, the maintenance of posture, and the superimposition on these of voluntary control. The fact that such an attempt can be essayed with some hope of success is perhaps the best commentary on the advances that have been made in this field of physiology in recent times.

The first portion of the book deals with the history of nerve-muscle studies, and it is interesting to observe that the past differs from the present not so much in observation as in interpretation. Moreover, the interpretations are not so far apart when modern physico-chemical terms are substituted for the humoral terminology of earlier times. The very significant contributions of British physiologists earn many commendations from the author. It is perhaps worth while mentioning once again that the discovery of electricity was due to nerve-muscle physiology.

The lucidity of the chapters on the contractile response of individual fibres is worthy of the highest praise, for the subject is not easy. When all the physiological and anatomical observations are gathered together and analysed a theory of muscle contraction can be presented which is not all *ad hoc*, but is really based on an immense mass of well attested quantitative observations. Briefly, the modern theory is that a wave of permeability, with its attendant potential difference, passes down the nerve trunk and leads to a concentration of ions at the motor end plate. This concentration of ions causes a wave of permeability to pass along the muscle fibre, probably in close contiguity with the sarcostyles. The ionic interchange, resulting from the wave of excitation, is responsible for the action current and for the liberation of lactic acid. The lactic acid appears to be liberated in the sarcoplasm, and causes the contraction by altering the orientation of the regularly arranged molecules of the sarcostyles. Certain features of the response, such as the rate of development, the shape of the curve of relaxation, etc., are due to the impediment of "viscosity factors." If it were not for these factors any movement might be so rapid as to fracture the bones. When the concentration of lactic acid falls below a certain value there is a phase-reversal, and contraction suddenly ceases.

The next part of the book carries the subject of the contractile process into the reflex region, and deals with reciprocal innervation, inhibition, and the like. The chapter on tonus pays a tribute to the genius of Sherrington, and looks upon his conception of tone as a postural reflex as one of the great achievements of physiology. The author concludes that the evidence of regulation of tone by the sympathetic system is insufficient, but believes that this system may have some part in the control of fatigue.

The last portion of the book deals with the higher centres, and lays emphasis on the elucidation of the functions of the red nucleus by Magnus and Rademaker. This nucleus is the centre which governs the normal distribution of muscle tone, and is essential for certain righting or postural reflexes. In a final summary the author attempts to formulate a working hypothesis as to how the cortex superimposes voluntary activity on the postural activity of the lower centres.

The appendix contains a description of the methods of investigation and the apparatus that has been used in obtaining the results discussed in the book.

SCHOOL HYGIENE IN THE UNITED STATES.

DRS. THOMAS WOOD and HUGH ROWELL, both of Columbia University, have produced a massive volume giving elaborate details of the work of *Health Supervision and Medical Inspection of Schools*[4] in the United States of America. As in this country, school medical inspection began with the testing of the special senses of the children. In 1899 Connecticut passed a State law providing for school medical inspection. Teachers were required to make tests of the sight and hearing of their pupils. Other States soon followed, and to-day an attempt is being made to correlate on broad comprehensive lines the different parts of the whole field of school health supervision. Responsibility is commonly placed on the department of education or the department of health, or on the two departments jointly. As yet, States have been slow in providing for co-ordination between the medical service or supervision, the physical education, and health education. Experience has shown that the best law is mandatory in the general requirements which make provision for health service of all children, but that there should be elasticity so that the different conditions of the several States may be met. Health examinations—that is, the preliminary sorting of the children—are made by the best persons available. This responsibility has, in different school systems, been placed on the school physician, school nurse, the head of the school, or the classroom teacher, according to local conditions. The volume is filled with a mass of data showing the general routine of school medical examination throughout the country. Sheet after sheet is filled with tabular forms providing for elaborate returns by the examining doctors. The general impression made by these forms is that there must be very little room for individual enterprise on the part of the doctor. His style must be sadly cramped by the forms he has to use. Over-elaboration is as bad as slackness. The first may kill initiative, the the second engender slovenliness. Some mode of returning the facts found in school medical examinations there must be, as otherwise there is no possibility of correlating the findings. But it would seem from the examination of this book that forms are too dominant.

Nevertheless, it is evident that good work is being done, both for the care of the average child and for the defective. More than that, attention is being directed to the problem of the "gifted child" and the best way of cultivating his or her individual abilities. These children, it is recognized, are as much one of the school problems (although of a different sort) as backward children. An extract is given of the examination of fourteen hundred of these children in California by Terman in 1925. He found that their health was superior to the average, and that dentition, pubescence, and menstruation occurred somewhat

[3] *Muscular Contraction and the Reflex Control of Movement.* By J. F. Fulton, B.Sc.Harvard, M.A., Ph.D.Oxon. London: Baillière, Tindall and Cox. 1926. (6¼ × 9½, pp. xv + 644; 215 figures. 45s. net.)

[4] *Health Supervision and Medical Inspection of Schools.* By Thomas D. Wood, A.M., M.D., and Hugh Grant Rowell, A.B., M.D. Philadelphia and London: W. B. Saunders Company. 1927. (Med. 8vo, pp. 637; 215 figures. 35s. net.)

earlier than in the unselected group. Their teeth were better kept, there were fewer mouth-breathers amongst them, more had undergone tonsillectomy. Both hearing and sight were appreciably better. There was less nervousness and stuttering. Dietary and sleep were better arranged by their parents. "The physical superiority of the gifted group is indicated by the higher average of nutrition and by superior stability, physical and mental." These children had chosen their parents wisely!

The authors are to be complimented on their industry, but no one will assert that it is a book to read. It is one that will repose on the high shelf and be referred to on occasions.

NOTES ON BOOKS.

MR. T. G. BEDFORD'S *Practical Physics*[5] embodies the course followed by students in their first year at the Cavendish Laboratory, Cambridge. The author, who is a demonstrator in experimental physics in that laboratory, has based his book on his experience of the needs of beginners and the amount of work possible in the time at their disposal. In the directions given for work to be performed, while keeping in view the immediate aim of experiment, he has paid careful attention to preparation of the student for higher work. The book is intended to be used as a companion to oral instruction, and does not accordingly treat more fully of theory than is necessary for explanation of the methods. The scheme of work is one which will be generally helpful to teachers, and will be equally appreciated where the laboratory equipment is different from that at Cambridge.

We are reminded by KAYE'S book on *High Vacua*[6] that only a short while ago the high vacuum presented interest to few beyond those engaged in physical research. Now the high vacuum has an important place in industry. The number of wireless valves manufactured every year runs into millions, and it appears possible that out of the new experience gained in the technology we may see an extension of the principle of Dewar's vacuum flask to metal structures of a size adaptable to cold storage on the large scale. Kaye's book describes the historical development of the art employed in generating vacua from the time when the "Magdeburg hemispheres" and Prince Rupert's water-bolt were subjects of marvel, down to the most recently designed vacuum pumps. Of these there are many varieties, invoking the action of almost as many different principles of physical law. The book is an engaging little volume. It describes how hermetically sound joints may be made between dissimilar substances, which include junctions of glass to iron, copper, and other metals. Not less interesting is its explanation of the physical and mechanical effects of the apparatus. The narrative presents also an illuminating review of the more remarkable properties of highly rarefied gases. The book will be a helpful guide to those occupied in any branch of the subject, and may be read with entertainment by many others.

Of handbooks on heart disease there is perhaps a sufficiency, but Dr. CHAPMAN has yielded to the solicitations of his publishers and produced another, with the title *The Heart and its Diseases*.[7] It is a small volume, and cannot be said to be an improvement on its predecessors. It contains a rather sketchy account of the subject, and for that reason we doubt whether it will be really helpful to the busy practitioner, for whom it is intended.

A textbook of surgical therapeutics[8] in three parts has been published by Professors P. LECÈNE and R. LERICHE. The first volume, by Leriche, deals with various general conditions and the limbs. The two authors are associated in the second volume: affections of the head, mouth, neck, thorax, and breast are described by Lecène; the spine and pelvis by Leriche; and Professor F. Lemaître contributes articles on the nose, ear, and larynx. The third volume contains an account of surgical conditions of the abdomen and the genito-urinary organs by Lecène. These three volumes are rather an attempt at generalization than a detailed description of special conditions; particular emphasis is laid on the principles of surgical treatment, which are illustrated by a rapid review of the various clinical conditions.

[5] *Practical Physics.* By T. G. Bedford, M.A., F.Inst.P. London and New York: Longmans, Green and Co., Ltd. 1926. (Demy 8vo, pp. x + 425; 225 figures. 10s. 6d. net.)
[6] *High Vacua.* By G. W. C. Kaye, O.B.E., M.A., D.Sc., F.Inst.P. London and New York: Longmans, Green and Co., Ltd. 1927. (Demy 8vo, pp. xii + 175; 91 figures, 4 plates. 10s. 6d. net.)
[7] *The Heart and its Diseases.* By Charles W. Chapman, M.D.Durh., M.R.C.P.Lond. Edinburgh: E. and S. Livingstone. 1927. (Cr. 8vo, pp. xii + 215; 52 figures. 8s. 6d. net.)
[8] *Thérapeutique Chirurgicale.* Par P. Lecène et R. Leriche. Paris: Masson et Cie. 1926. (Roy. 8vo, Vol. I, pp. viii + 643; Vol. II, pp. viii + 507; Vol. III, pp. viii + 646. 10s. each volume.)

PREPARATIONS AND APPLIANCES.

"Vita-Weat" Crisp Bread.

FROM time to time for many years the merits of whole-meal bread have been strongly and ably advocated, but the response made by the public to the recommendation has never been very enthusiastic or enduring. Lately a new interest has been created in that article of diet by the introduction of bread in a form similar to the crisp bread of Scandinavia, which, we hear, has caught the public liking to a remarkable extent, and has become the subject of an increasingly brisk trade in this country.

We have examined a sample of "Vita-Weat," made by Messrs. Peek, Frean and Co., and found it a very agreeable form of crisp bread. The chief cause, we believe, of all former failures of whole-meal bread to command a preference was the fact that bran is one of the toughest of raw foods; it is neither palatable to eat nor congenial to digest unless it is well cooked. In an ordinary loaf only the crust can be said to be well cooked; the interior part of the loaf is cooked just enough to gelatinize starch, but no more. Modern methods of baking have tended towards producing the greatest quantity of bread, as gauged by weight, from a given quantity of flour. Very little cooking is thus accomplished, and little crust is produced. Vita-Weat, on the other hand, is all crust. It is not like either rusk or biscuit, the difference being due to the fact that in Vita-Weat the bran is subjected to a preliminary cooking before the final baking. It appears to be a carefully prepared form of whole-meal wheaten food.

Air Cleaner for Car Engine.

An air cleaner which can be fitted to the air intake of any carburetter has been placed on the market by the Zenith Carburetter Co., Ltd. (40, 44, Newman Street, London, W.). It works by giving a rotary motion to the incoming dust-laden air by means of an outside set of vanes; the motion is reversed by an inside set of vanes, so that at the point of reversal of direction the air stream becomes stationary, and the heavier particles of dust fall by gravity to the bottom of a container. The air, continuing its journey, is then drawn through a series of felt-covered tubes which finally remove the finer dust. It is claimed that this filter removes all dust from the air entering the carburetter, thereby saving premature engine wear, for such dust, if left alone, finds its way into the cylinder head, where the sharp, gritty particles, mixed with the oil of the engine, abrade the piston rings and cylinder walls. It is an interesting appliance, produced in three sizes for different carburetter bores.

POOR LAW REFORM.

IN an article in the JOURNAL of June 11th (p. 1073) we set out and commented upon a revised scheme for Poor Law reform which was stated to have been agreed upon between the Ministry of Health and those members of parliament who have grouped themselves as the Unionist Agricultural Committee. Since then the scheme has been issued as an official memorandum with a covering letter addressed by the Ministry to the Associations of Local Government Authorities. The memorandum is almost identical with the "main heads of the scheme" as previously communicated to the press, there being no improvement even in the inelegancies, grammatical lapses, inconsistencies, and ambiguities of the earlier statement. The only important variation is that vaccination is now included, along with the registration of births, deaths, and marriages, as a matter on which Parliament may make special arrangements when the proposed new boards of guardians take over the functions and obligations of the existing boards.

The covering letter of the Ministry is of some interest and importance. It confirms our surmise that the new scheme is not, as had been generally understood to be the case, a mere modification of the previous provisional proposals in so far as they affected rural areas; but is, in fact, a complete alternative scheme to be substituted in its entirety for the provisional proposals, which are now withdrawn. The letter also justifies the opinion expressed in the article in the JOURNAL that the scheme "involves an almost entire abandonment of the principles on which the previous proposals were based, and of almost all the advantages which they were calculated to produce." The great scheme for the reform of the Poor Law which Mr. Chamberlain brought forward, and which the British Medical Association welcomed, and in general approved, has, in fact, now gone the way of other such schemes; and if next year any bill is introduced with a serious intention of passing it (and even this is doubtful in view of other

projects to which the Government is committed), it seems that it will consist of proposals merely for minor, though useful, administrative modifications, while the unsatisfactory essential features of the present system will be left very much as they are in all areas except, perhaps, county boroughs. Even this exception seems uncertain.

The circular (No. 805) and memorandum of the Ministry of Health made it clear

(1) That London and the metropolitan boroughs are now to be excluded from the scope of the bill, so that the Poor Law conditions of one-eighth of the population of England and Wales will remain unaffected.

(2) That the proposed scheme of financial reform is now abandoned and no alternative proposals are made, thus seeming to justify, so far, the astonishing claim made by the Unionist Agricultural Committee that the Ministry had agreed, as a condition of the discussion of the new proposals, that financial details must be such as would be eventually satisfactory to that committee.

(3) That boards of guardians are not anywhere to be abolished, with the consequent distribution or delegation of their functions to existing local government councils or committees, but that boards of guardians are to remain, though their areas may be more conveniently adjusted, and the method of election, so far as urban areas are concerned, modified.

(4) That rural district councillors are to be everywhere confirmed as *ex officio* members of the boards of guardians, thus strengthening and perpetuating what has been found by experience to be in many areas one of the chief obstacles to the efficient application of the Poor Law.

(5) That, in some respects most important of all, the proposals in regard to the readjustment of function and unification of administration in public health, education, and other matters among local government authorities are now altogether abandoned.

The abandonment of the proposals last referred to is stated to be due to the fact that the matter is being dealt with by the Royal Commission on Local Government, presided over by Lord Onslow. This fact might conceivably have been considered a good reason for not making such proposals until the Royal Commission had reported. The conditions in this respect were exactly the same when the provisional proposals were first made as they are now; and the only result achieved has been to delay the work of the Royal Commission by many months. The omission of these proposals from the scheme incidentally removes one of the two important matters on which the Association expressed disagreement with the Ministry; but it also removes the main and most urgently required reform which the scheme embodied, that on account of which the Association gave to the suggested reforms as a whole its emphatic support. It now becomes doubly important that the views of the British Medical Association as expressed in its Memorandum of Evidence should be pressed upon the Royal Commission on Local Government.

The second of the two important points on which the Association had expressed disagreement with the provisional proposals of the Minister is made even less satisfactory in the substituted scheme. The Association wishes that the co-option of members of the medical profession and others experienced in health or hospital matters shall be required on the appropriate committees of local authorities. Under the previous provisional proposals such co-option was allowed, but it was permissive, not compulsory. Under the new proposals co-option will, in certain circumstances, be possible, though still not obligatory, but the criterion of eligibility for co-option now laid down is "experience in Poor Law work." It seems so clear that, under the new conditions, the most valuable qualification of a co-opted member of the committee of management of a Poor Law hospital would be experience of hospital work, rather than experience of Poor Law work, that it may reasonably be expected that some modification of the scheme may be obtained in this regard. Observations on the previous proposals were invited from the British Medical Association, and such observations were, in fact, made to the Minister of Health and received some notice by him. The invitation for comments and suggestions on the new scheme appears to have been addressed only to the associations of local government authorities, but it is certain that the Association will wish to direct the Minister's attention at least to this matter of co-option, and it is hoped that this attention will be accorded.

The Centenary
OF
UNIVERSITY COLLEGE, LONDON.

UNIVERSITY College, London, has been, and as we go to press still is, celebrating its centenary. The foundation deed was signed in 1826, and the foundation stone laid in 1827. The celebrations have been prolonged, for they may be said to have begun over a year ago, when, in foundation week, the Provost, Sir Gregory Foster, delivered an oration before the Union Society and reviewed the college history of "these hundred years." On several occasions during the last two months, and perhaps most impressively by the purchase, completed last week, for over a quarter of a million sterling of a headquarters site in Bloomsbury, London has been reminded that it has a University, and many colleges, of which University College is the largest, as well as a great number of other institutions which, though not constituent bodies of the University, are available for advanced studies in every subject, except alas! clinical medicine.

Visit of the King and Queen.

Were a graph to be made of the interest aroused in the average Londoner by the centenary its highest point would be on June 23rd, when the King and Queen drove in state by way of rebuilt Regent Street to Gordon Square, where they alighted and entered the new Hall of University College, then used for the first time. They found it packed, floor and galleries, by delegates and students, who sang the national anthem. The Vice-Chancellor (Sir William Beveridge) having welcomed their Majesties on behalf of the University, the King received from the President of the Union a copy of the centennial volume, and the Queen from the President of the Women's Union the centenary medal in gold. The Chairman of the College Committee (Lord Chelmsford) then read an address, in the course of which he said that at the time the College was founded the Universities of Oxford and Cambridge alone in England offered teaching of a university standard; the basic principle of those who brought University College, London, into being was to make advanced education accessible to all without religious tests or any other restriction. In the important matter of women's education also the College could claim to be the pioneer. During the last quarter of a century the number of students had risen from 1,098 to 3,200, and the total income from £29,000 to £188,000. There were now five faculties—arts, laws, science, engineering, and medical sciences—and the teaching staff numbered 250. The address concluded with an enumeration of past professors and fellows who had achieved special distinction; the professors in the faculty of medicine thus mentioned were William Jenner, Robert Liston, Edmund Parkes, William Sharpey, Sydney Ringer, and Ernest Starling.

THE KING, in his reply, reviewing the progress made in education methods during the century for which the College had existed, laid stress on the extension to women of facilities for higher education, and on the fact that the great and still growing university established in the capital had served by its example to encourage the foundation of similar universities both in the United Kingdom and in other parts of the Empire. The College could look back with pride to past achievements, especially to the rapid extension of its work during the last twenty-five years, largely due to the guidance of the present distinguished Provost (Sir Gregory Foster), and could look forward confidently to the future. At the same time the measure of the success of the College and the increase in the number of its students was a measure also of its present need. Though the State now aided university institutions to an extent which to the founders of the College would have

seemed impossible, there were limits to public assistance. Moreover, there was some danger to national ideals of university freedom in too great reliance on State grants. The medical departments had attracted the munificence of a great American foundation, which still more recently had afforded another signal illustration of its world-wide activity by a timely gift to the University of London, of which the College was a part, enabling it to purchase a building site rich in possibilities for the future. But it was on home support that reliance must be placed, and the King concluded his reply by expressing a confident hope that the citizens of London would assist the aims and endeavours of University College in the future as they had invariably done in the past.

After the College hymn (by Mr. John Drinkwater) had been sung, their Majesties passed to the main quadrangle, and before leaving visited Professor Sir Flinders Petrie's exhibition of the results of his excavations at Gerrar in Palestine this year, and a historical display of paintings, drawings, and sculpture by the students and staff of the Slade School, through which they were conducted by the present occupant of the Slade Chair of Fine Art, Professor Henry Tonks, F.R.C.S. The Minister in attendance was Lord Eustace Percy, President of the Board of Education.

In the evening a series of group dinners were given in the College, including one by the Provost, and another by Professor Karl Pearson, director of the laboratory of national eugenics, who presented to each of his guests a card bearing a wax impression of a seal, having in its centre a reproduction of the skin whorls of the right ring finger of Francis Galton, whose name the laboratory bears.

Dedication of the College Hall.

On the next day (June 24th) the College Hall, formed by the remodelling of a chapel long disused, was formally dedicated to its new purpose by Prince Arthur of Connaught, who was accompanied by the Princess. Before entering the hall Prince Arthur unveiled a dedication stone bearing the following inscription:

THIS HALL IS A MEMORIAL UNTO
THE MEMBERS OF UNIVERSITY COLLEGE
AND MEDICAL SCHOOL WHO FELL IN
THE GREAT WAR, 1914-1919,
AND OF THE
CENTENARY OF THE FOUNDATION, 1827-1927.

Prince Arthur began his response to an address presented by the chairman of the College Committee by saying: "The roll of service of the College and medical school contains some 3,600 names. Three hundred fell in the war; their names are recorded on the north and south walls of this building. May their honour and glory never be forgotten." The development of university work in London had, he continued, been difficult, and the College had taken an effective share in overcoming obstacles. The recent settlement of the question of the site for the headquarters of the University of London was a tribute to the wisdom of the founders of the College in their choice of the place on which it should be erected.

The Provost, in welcoming the delegates, said that their presence was a great encouragement.

The delegates came from universities, colleges, and learned societies all over the world. Some idea of their number may be gathered when it is said that this part of the proceedings occupied nearly an hour. The address of the British Medical Association was presented by Sir Dawson Williams, who had had the honour of being appointed delegate by the Council.

But before this file past four delegates were called on to speak. The first, the Earl of Balfour, said that he was, he assumed, present because he was the Minister of the Crown most deeply interested in higher education, and especially higher scientific education in the universities. In any survey of what the universities were doing in these respects, the immense share taken by University College, London, would not be omitted or underrated. The great founders of that College, in their programme of studies, had shown the boldest genius, for very few at that date foresaw the great part science was to play, not only in the culture of mankind and in bringing home to people's hearts and minds the wonders of the physical universe, but also the great part it was to play in civilization. Yet they did not exaggerate the position of science; they did not minimize the humanities, but took a sane and complete survey of human knowledge.

Professor Saurat, an old student of the College, most of whose address was delivered in excellent English, spoke for the University of Paris; Professor F. Clarke for the University of Cape Town, and Professor J. L. Lowes for Harvard University.

The celebration was kept up until July 2nd. Opportunities for seeing something of the workaday life of the College were afforded in the mornings; altogether 54 lectures and addresses were given during the nine days, while various departments arranged demonstrations and special exhibitions. In the afternoons delegates were enabled to visit museums and many other places of interest in London, while the evenings were filled for the most part by lighter kinds of entertainment, though on June 30th a centenary oration was given by the Right Hon. H. A. L. Fisher, formerly President of the Board of Education and now Warden of New College, Oxford, on "Our universities"; but even this was followed by a concert. A centenary play was performed on three evenings. A past and present students' dinner filled the evening of June 29th, and a number of group dinners were given on June 25th, as well as on the preceding evening. A thanksgiving service was held at Westminster Abbey on the afternoon of June 30th, and a special Mass was sung at Westminster Cathedral. The Drapers' Company entertained a large party at luncheon on July 1st, and finally a dance was arranged in the College Hall on Saturday, July 2nd.

Description of the Hall.

The architects who have been entrusted with the task of turning a church built in the nineteenth century ecclesiastical stucco style into a hall with a remarkably handsome and dignified interior have done their work well. The church known as All Saints', Gordon Square, but actually situated in Gordon Street, was built some eighty years ago as a chapel-of-ease to the parish church of St. Pancras, and during the later years of its ecclesiastical existence its incumbent was the vicar of St. Pancras. At the time of its building the appetite of the Londoner for public worship was keen, and as the old parish churches were inadequate for the increasing population, chapels-of-ease, as well as Nonconformist places of worship, sprang up all over the well-to-do quarters of the town. Go where the student of London topography will, he comes across, in quiet by-ways and in main streets, these buildings, many of which have long since ceased to be used for religious purposes, and have been put to far less dignified purposes than this church of All Saints. Witness the chapel in Gower Street, close to University College, now occupied by Messrs. Maple.

The unconsecrated chapels of London might be the theme of an interesting historical essay. Some of them, like Lady Wittlesea's chapel of Thackeray's *The Newcomes*, were profitable commercial speculations, even when not combined with wine cellars. The presumed prototype of the scene of the Reverend Charles Honeyman's ministrations was in Curzon Street, on the site now occupied by the building erected for a town house of the Duke and Duchess of Marlborough, and some Londoners can still remember the rich vinous atmosphere, somewhat musty, in which the congregation carried on its devotions. The style of architecture of most of these chapels, whether Church of England or Nonconformist, was generally depressingly mean, and the late All Saints' Church was an unusually favourable specimen, for it had little pretence. Its façade has been hardly changed, except that the belfry has been removed, but the interior has been marvellously transmogrified by the addition of a beautiful ceiling of panelled woodwork and the extensive use of pale oak elsewhere. The effect is very pleasing, and it will form a worthy setting for great academical functions as well (as it is hinted) for the less solemn worship of Terpsichore.

British Medical Journal.

SATURDAY, JULY 2ND, 1927.

UNIVERSITY COLLEGE AND THE UNIVERSITY OF LONDON.

THE foundation of University College in London in 1827 was what Thomas Carlyle might have termed a portent, though we do not remember that he did. It was the outward and visible sign of a trend of men's minds which had been gathering strength for nearly three centuries. The religious reformation, largely a political movement which attained its most complete expression in Great Britain, was followed by the Caroline revolution; shortly after that had apparently failed John Locke had made his appeal to temperate thinkers by his *Essay Concerning Toleration*, in which he urged that no disability should attach to religious belief, and the founders of the Royal Society had begun to popularize among the educated the need for seeking out the secrets of nature by experiment. Voltaire and Rousseau—they both died in 1778—had exerted their great influence in the political and social fields in the first half of the eighteenth century, and the encyclopaedists had flourished in its third quarter. The effect of the French Revolution on opinion in this country was profound. Its excesses repelled, but its original principles attracted. In the shadow of the Napoleonic wars these principles were being eagerly studied by the leaders of thought here, and were slowly permeating the masses. One result was that at no long interval there arose demands for political reform, for the extension of education and for freeing it from theological tests. Contemporaneously the precision of experimental methods was being rapidly increased, especially in chemistry, by Priestley, Lavoisier, and Cavendish. Far-seeing people, as Lord Balfour said at the dedication of the Hall of University College last week, perceived that science would become a great instrument of culture, and would stimulate men by revealing the secrets of nature, though few or none then had any understanding of the great part it was to play in civilization.

So when Thomas Campbell, the poet, came home from Berlin with his head full of the ideas Humboldt had embodied in the university established there in 1809—that it should be "unattached to any particular creed or school of thought," and "devoted only to the interests of science and learning"—he found many of every social rank and religious persuasion who had independently formed the opinion that a free university should be established in London—that is, a university free from any religious test, and ready to give to science its proper place in a liberal education. The firm hold Campbell had of the first principle was shown by an incident that occurred at an early stage. One of those who had been studying the subject and most readily accepted Campbell's principles was Brougham, but, impressed as a politician by the strength of the Nonconformist vote, he began to wobble, and accepted a compromise under which there was to be a Faculty of Theology with some Church chairs and some Presbyterian. Campbell was distressed that his principle should have been misunderstood, and was thrown into a panic, fearing that "the whole beautiful project was likely to be reduced to a mere dissenters' University"; it was not, of course, that he objected to "dissenters," but that he feared denominationalism of any kind, because, as Brougham said in a slightly different connexion, "any interference with theology or politics would have endangered the existence of a union which demanded the most cordial co-operation from all who wished well to the cause." Campbell quickly triumphed over all opposition, and the University came into existence as a secular body.

When the College first opened there was a chair of physiology and a chair of anatomy; in 1831 these were merged into a single chair of anatomy and physiology, but a separate lectureship in anatomy was set up; shortly after William Sharpey's appointment to the chair, in 1836, they were separated again, and under Sharpey histology was taught as a branch of physiology. Sir John Rose Bradford, in his centenary address last May (BRITISH MEDICAL JOURNAL, May 21st, p. 926), reminded us that from the first the founders recognized that medicine was not only a practical art, but also a branch of learning, and should take its place with other studies in any university; in this they followed the example of the University of Edinburgh. Temporary arrangements were made as early as 1828, and two clinical chairs—one in medicine and the other in surgery—were established. When the hospital, which was built opposite the College, was opened, two clinical professors were appointed, with the special object of training students in the observation and study of disease. The aim of the founders was to place the teaching of each subject in the medical curriculum in charge of an expert in that branch, thus ensuring that they should be viewed from a broad and not from a utilitarian point of view; within the College itself the teaching of medicine was correlated from the beginning with the teaching of morbid anatomy.

Of the vicissitudes of the University of London during these hundred years this is not the place to speak. Without doubt a great many mistakes were made, not only by the University, but also by the educational bodies which ought to have been constituents, especially perhaps by the medical schools. The end of these misunderstandings is not yet, but it seems to be approaching.

The proceedings at the centenary of the foundation of University College, reported elsewhere in this issue, were graced by the presence of the King and Queen at the inaugural ceremony. The celebration, coinciding as it does with the completion of the purchase of the new site in Bloomsbury (not far from the home of the British Medical Association) for the headquarters of the University of London, and with the new munificent gift by the Rockefeller Foundation to the Faculty of Medical Sciences at University College, has aroused to an unprecedented degree the interest of Londoners, and we venture to express the hope that it will lead to their taking a greater pride in the University, and to their making more donations to enable it to carry out its great purposes.

THE PROTECTION AND PROSPECTS OF RADIOLOGISTS.

THE Mackenzie Davidson Lecture this year has been delivered by Sir Humphry Rolleston, who devoted it to a discussion of the effects of radiation on patients, and of the means of protecting persons exposed to radiation, especially the radiologists themselves. The lecture was established eight years ago by the Röntgen Society and the Electro-Therapeutic Section of the

Royal Society of Medicine to perpetuate the memory of a man who was a pioneer in *x*-ray work, and during his life was a conspicuous figure in the development of a department of science which, as is pointed out by Sir Humphry Rolleston, has in the space of a few years been almost revolutionary in its effects upon medicine and surgery generally, and upon accuracy in diagnosis in particular. It is very noticeable how rapidly radiology established itself, and the reasons for this are easy to see: apart from the striking manner in which it, so to say, speaks for itself, from the earliest days it has had the encouragement and support of men of light and leading in the profession. It is not too much to say that the work Sir Humphry Rolleston has done for radiology has been far-reaching in its effects. Not only did he consent to be President of the Röntgen Society while still holding the premier position in medicine as President of the Royal College of Physicians, but he has also been the President of the British Institute of Radiology, President of the Congress held in London in 1922, and last, but by no means least, chairman of the Committee on Protection which was constituted in 1921. Its recommendations have materially affected *x*-ray work, not only in England, but all over the world.

Sir Humphry Rolleston's lecture, which is published not quite in full in another part of this issue (p. 9), deals effectively with the work of this committee and the reason which led to its formation. The toll exacted by *x* rays from the earlier workers was appalling; probably at least one hundred have been killed, and in addition there are the wounded, whose number cannot be estimated. Great Britain can claim to have been the first country to appreciate the fact that the dangers were such that it was immediately necessary to devise effectual methods of dealing with them. The actual results of the pioneer work of the Protection Committee are that it is now a comparatively easy matter to ensure the safety of both patients and radiologists, that *x*-ray burns are a thing of the past, and that *x*-ray dermatitis and constitutional effects can be eliminated. It was very largely due to the energy, the sound common sense, and the qualities of leadership shown by Sir Humphry Rolleston that the principles of the protective measures enunciated by the committee came to be adopted, not only in this country, but practically everywhere. Although some may be of opinion that strict adherence to the committee's recommendations savours rather of over-protection, this is, at any rate, to lean towards the right side—the only safe side. If some private clinics, and, indeed, some hospital departments, would not pass the tests determined by Professor Kaye and recommended by the committee, it is at least very improbable at the present time that their protection is so faulty or inadequate as to be definitely a source of danger. What is possibly to be feared is that, with no more deaths or constitutional disturbances, and with no more sufferers from *x*-ray dermatitis when those few still left alive have passed away, future radiologists, having had no practical experience, will fail to realize the dangers of their occupation, and so precautions and safety measures may tend to be neglected.

Another important part of the lecture deals with the position of radiologists in the medical profession; and intimately connected with this is the future outlook in respect to the inducements which would warrant a young man in specializing in the practice of this subject. Sir Humphry Rolleston insists that it is important that clinicians and radiologists should be in constant touch and should consult on equal terms, that it is essential for them to follow up their patients and enlarge their pathological knowledge by attendance at *post-mortem* examinations and at operations on cases which they have examined radiologically. He suggests also that there may have to be specialization in *x*-ray work in the sense that there will be those who undertake either dental, or urological, or gastric, or some such single line of *x*-ray work only, and who become, so to speak, super-specialists in this one branch. This may come about in large centres, but it is not likely to become general. The important point which makes it difficult to advise young men to enter this branch of our profession is finance. Except in the very large centres of population it is essential that a radiologist should be in a position to carry out efficiently any kind of *x*-ray examination required, or any kind of *x*-ray treatment: if he is to do this he will be compelled to have large premises involving heavy rent and taxes, and to put up apparatus costing anything from £1,500 to £3,000; and in addition he will have to meet the cost of skilled assistance as well as heavy running expenses. Notwithstanding this there is a tendency to cut fees to a minimum, and, apart from direct rivals, radiologists have to face the competition which arises from many medical men and dentists who are enthusiastic enough to do their own *x*-ray work, and of hospitals taking fees for this work. They are handicapped by the lamentable fact that certain surgeons and physicians send private patients to non-medical radiographers. It is common knowledge that this is frequently done, and whatever excuse there may or may not have been for it in the past, there is certainly no excuse for it now, and, what is more, it is a practice directly opposed to the interests of both the patient and the medical profession.

To sum up, the young medical radiologist has to possess expert electrical and photographic knowledge; he must be a good pathologist; he must be able to consult on equal terms with surgeons, physicians, gynaecologists, and all other specialists on their own specialties; and in addition to all this he must have technical skill in radiology and somewhat remarkable *x*-ray diagnostic powers. Further, he must of necessity have considerable capital or financial backing in order to start; and, finally, he will find that in spite of all this he must be content with a financial return which will not compare in amount with the possibilities of specialism in other directions.

THE ROCKEFELLER NEW GIFT TO UNIVERSITY COLLEGE.

LAST week the Senate of the University of London made public acknowledgement of a new gift by the Rockefeller Foundation to the Faculty of Medical Sciences at University College. The new endowment of £118,178, when added to the Foundation's former gift of £369,800 (an account of which was given in the BRITISH MEDICAL JOURNAL of June 19th, 1920, p. 838), brings the sum of its contribution to the Faculty to nearly half a million pounds.

The aim of the earlier gift was to provide a building and equipment for the Department of Anatomy, and make fuller provision for teaching and research in that subject. In addition, funds were provided for the extension of the Department of Physiology.

One of the objects of the new endowment is to help in the development of the Department of Pharmacology, which in the past has been seriously hampered by the inadequacy of the financial provision for its work and the smallness of its staff. The present head

of the department, Professor Verney, believes that the Rockefeller Foundation's munificent gift will materially help to remove these hindrances, and enable him and his colleagues to give a practical demonstration of the exceptional opportunities for the development of pharmacology and therapeutics which the department enjoys, by reason of its intimate association both with the great School of Physiology at University College and with the Medical Unit at University College Hospital.

Pharmacology makes use of the methods of experimental physiology, and can be regarded as an applied science. Its three main branches correspond to the physico-chemical, comparative, and human departments of physiology. Its development may be expected to take place in all three directions, each branch both aiding and being dependent upon the growth of the others, and also contributing to the closer integration of the medical with the biological and physico-chemical sciences, which is the distinctive aim of such achievement at University College as will always be associated with the name of Ernest Starling.

So far as pharmacology itself is concerned, much remains to be done in all its three branches. Indeed, the science is still in its infancy. Very little is known as to the relationship between the chemical constitution of drugs and their physiological action; and the effects of very few pharmacological agents on the functional responses of normal and pathological tissues have been extensively investigated along physiological lines. There is, too, a similar lack of accurate knowledge of the action of the majority of drugs on man.

Such generous donations as that now made to University College by the Rockefeller Foundation will without doubt go a long way towards increasing the general fund of biological knowledge on which all rational therapeutics must ultimately rest. The purpose of the gift of £25,000 for pharmacology is not to relieve the College of any of its present obligations in this branch of science, but is an addition to the endowment. The new gift also includes a capital sum to provide the Departments of Anatomy and of Physiology with £500 a year each to help meet the expenses incidental to research. In 1920 it was not anticipated that so large a number of research workers would immediately seek admission to the departments in question. Although generous help towards the expenses of individual workers has been provided by the Medical Research Council, the Grant Committees of the Royal Society, and many other bodies, both in this country and in America, there has been an increasing strain on the resources of the College, which will be partly relieved by these additions. To meet expenses of a more general character, a further endowment of £72,126 has been provided.

It cannot be too strongly impressed upon the British community that, in spite of these munificent gifts from America, there is still scope for further financial help to permit the men who devote their lives to research in medical science to carry on work which is becoming exceedingly exacting. Further funds are needed to save the teachers and investigators from the necessity of adding to their incomes by doing work that distracts them from their main purpose. It should be added that funds are urgently needed to meet the expenses of further research in radiology, and the problem of publication of researches that need to be illustrated with numerous figures still awaits solution.

MALARIA CONTROL.

THE Ross Institute, which has now issued its annual report for 1926, is the youngest of our scientific foundations; it was officially opened by H.R.H. the Prince of Wales last July. The report affords an insight into the aims of the institute and the kind of work which it undertakes. It deals primarily and almost exclusively with tropical disease, and what it does is in a sense a reflex of the work of independent scientists of British nationality, working hitherto on their own account and, by their energy and initiative, disseminating the practical results of their researches to the lasting benefit of vast areas of the Empire. The institute was founded as a centre to assist the continuation of this work, and accordingly we find that they have at Putney Heath, where it is housed, a research laboratory, a hospital devoted to tropical cases of interest to science and subsidiary to the research laboratories, and a body of workers who are keen in the campaign against tropical disease and strive for a better understanding and more co-operation among planters' associations, and local governments in the countries mainly concerned. Were evidence asked of the value of research and propaganda, the history of the advance in knowledge of tropical medicine and of the benefits accruing therefrom should be sufficiently convincing; weighty evidence, or at least evidence which will appeal more forcibly to the genius of Englishmen, is to be found also in the list of subscribers to the foundation of the institute. Nearly 80 per cent. of the money came from oil, tea, rubber, and development companies, and we may assume that they believed their money was well placed. Doubtless the British public, from pride in British discoveries and British enterprise, will also be ready to support the young foundation, which at present is entirely dependent on voluntary contributions. Issued with the general report is a separate special report on malaria control in Malaya and Assam by Sir Ronald Ross, who has recently, at the suggestion of the institute and through the liberality of the Indian Tea Association (London), visited those countries in order to inspect the antimalarial operations. He reports that malaria control in Malaya has now reached a high state of efficiency, and unless neglected in the future will quite possibly succeed in practically banishing the disease, or at least in reducing its prevalence to small local outbreaks. Effective legislation against the breeding of anopheles has been passed, numerous local boards have been established, and, above all, the authorities and all classes of the people recognize the benefits conferred by malaria control, and are anxious to have it extended as far as possible. In Burma it appears that advance has not been so rapid, chiefly because the planting community is not nearly so large, and there is much more popular, and therefore less instructed, control of the administration. Many planters are keen to control malaria, but their efforts are apt to be neutralized by the indifference of their neighbours. In the opinion of Sir Ronald Ross, the movement needs unifying by the formation of a local malaria control board for each group of plantations. In Calcutta general mosquito control is stated to be by no means effective, and the municipality does not appear to be as energetic as it might be in the matter of public health generally. Some strong remarks are made on the housing conditions in that city: "Why the Indian people, in some areas, are still allowed to live like Andamanese savages in the jungle passes my comprehension." Some improvement in this respect would seem to be a necessary preliminary to the establishment of efficient mosquito control. Sir Ronald Ross speaks in high terms of the work of the co-operative antimalaria and public health societies of Bengal, managed by the people themselves, with many branches in remote villages and rural areas. Nothing of the kind would have been thought of in

India thirty years ago, when medical men were generally met with opposition, if not with hostility, by the very people they were attempting to save.

BARON HALLER.

AT the fifth International Congress of Medical History recently held in Switzerland, Sir D'Arcy Power read a paper on the famous Swiss scientist Haller and his collection of surgical theses. A paper by Sir D'Arcy Power was likely to be interesting whatever its subject, but with a personage like Haller it could not fail to have features of special attraction. The theses were not Haller's, but were written by candidates for the university degree. They contain, it is said, a few grains of value, but the bulk, like much of such material, is chaff; the method of trial and error, however, is a fundamental evolutionary process, and not to be despised. But it is not the theses, but Sir D'Arcy Power's vignette of Haller himself, which makes such good reading; and it is illustrated with three delightful figures—one of the baron in profile, one showing him engaged in a surgical disputation in the schools, and the third depicting him botanizing in the Swiss Alps accompanied by his wife, a stout lady with an umbrella. Haller was an extraordinary man; he possessed more than the ten talents, and appears to have turned them all to profitable account. In the first instance he developed as a linguist; he early became proficient in Latin and Greek, and compiled a Chaldee grammar and a Hebrew and a Latin dictionary at the age of 9. As an encyclopaedist he wrote, at about the same age, an historical lexicon containing nearly two thousand articles. He next figures as a poet, and at the age of 15 had written tragedies, comedies, and an epic poem of 4,000 verses in the manner of Virgil, as well as translations from the works of Ovid and Horace. These early efforts did not meet with the approval of his maturer judgement, and he burnt them with his own hand. Later, however, he returned to the muses and composed a book of poems on the Alps, a work which was highly esteemed at the time, ran through twenty-two editions, and was translated into several foreign languages. As a token of the appreciation evoked by this work it was considered appropriate at the time to create Haller a major-general, although he was by no means of a warlike disposition. Some time before receiving his military commission he turned his attention to medicine, and in due course King George II appointed him professor of anatomy, surgery, and botany at the University of Göttingen. Of his renown as a physiologist and anatomist there is no need to make mention; for surgery he seems to have had a personal distaste—he could never bring himself to perform an operation on a man, although he carried out many experiments on living animals; in botany, more especially the botany of Switzerland, he became an acknowledged authority. Beyond his literary and scientific studies, Haller took a deep practical interest in public affairs. He was a member of the Sovereign Council of Berne, held, with great advantage to the country, the post of salt inspector in that city, served as president of the Society of Economics, helped to improve the condition of the clergy, interested himself in a scheme to fit the wealthier citizens for the higher civic offices, and established an anatomical theatre in Göttingen, which was, it would seem, the first physiological institute in Germany. But this is not all, for a contemporary writes thus of him: "He was wholly without ostentation either in his home or when he was amongst those who knew nothing of science. No one knew better than he how to accommodate himself to his company, for he was friendly with everyone and never gave offence. He had no pride, and there was an entire absence of self-seeking or any air of superiority. He had, in fact, none of the faults which are usually and with justice attributed to the learned and witty. He never boasted of his own works, and if they were mentioned he turned the conversation as soon as he could do so conveniently." Assuredly a medical saint! He was not averse, however, on occasion, to a small venture in the direction of body-snatching.

THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

SIR ARTHUR KEITH, in his annual report, announces that the specimens added to the museum during the past year will be on view in Room I of the museum from Thursday, July 7th, the date of election of new members to the Council, until Saturday, July 23rd. The specimens added to the departments of pathology, physiology, osteology, and odontology number nearly 300. Of the numerous additions to the pathological series many are of considerable interest; among them the following deserve special notice: congenital bilateral dislocation of the shoulder-joint in an adult, stenosis of the isthmus aortae and a large aneurysm of the middle cerebral artery from the same case, Paget's disease of the nipple with carcinoma in an early stage prior to the formation of a palpable tumour, a large lipoma from the gluteal region in which all the cells have undergone hyaline degeneration, a series of specimens of tumours of the mediastinum, lung, and pleura removed by operation, a dermoid polypus of the rectum to the surface of which is attached a long tuft of hair, and a specimen of the so-called myoma malignum of the uterus, a growth having the histological structure of a simple fibromyoma but exhibiting malignant characters such as the invasion of blood vessels. Mr. F. C. F. Beadles, F.R.C.S., the pathological curator, points out in his report that although the museum is rightly considered an institution of reference for the rarer lesions of the body, it is nevertheless essentially a teaching collection, and is largely used as such (student attendances, as distinguished from mere visitors, amounted to 3,500 during the year). The recataloguing and rearranging of the series of special pathology on which he is at present engaged affords an opportunity of making the museum more complete as regards the commoner lesions, and he asks for assistance in this matter; a list of specimens required is available for those willing to interest themselves in this direction. In the physiological department the curator, Mr. R. H. Burne, F.R.S., has continued his investigations on the lymphatic system in fishes, his researches pointing to the conclusion that the peculiar features which he has shown to exist in the angler are probably general throughout the group of bony fishes. He has also thrown some interesting light on the primary relation of the lymphatic to the blood-vascular system. In the department of osteology, one of the largest in the museum, the cataloguing of the extensive collection of human osteology is making good progress in the hands of Miss Tildesley. On May 23rd the greatly extended odontological room was formally opened by the President, Sir Berkeley Moynihan, whose speech on the occasion was published in full in our issue of May 28th. Sir Frank Colyer, the honorary curator of the department, is able to report the addition of a large number of new specimens to the collection, including valuable donations from the Zoological Society and the Royal Society of Medicine. The Conservator has been actively engaged in continuing his investigations on prehistoric and later human remains, and numerous reports have been issued embodying his conclusions thereon. Of these the most important are the report on the Galilee skull, published by the British School of Archaeology in Jerusalem; the report, prepared by the British Museum, on the collection of skulls brought from Ur of the Chaldees by Mr. Leonard Woolley; and the report on the human

skull found near the entrance to Kent's Cavern, which has been published in the *Transactions* of the Torquay Natural History Society. The annual report contains a long list of research workers and of research work done at the museum, and the Conservator takes occasion to remark that the museum is considerably more than a mere treasure-house of rare specimens, as some erroneously suppose it to be.

DOMESTIC SALT.

WE have received from a correspondent an inquiry as to the possible loss in table salt of chemical elements needful to health owing to their removal in the refinement of the salt sold for domestic use. Our correspondent, Dr. J. M. MacPhail of Middlesbrough, states that some years ago "coarse salt" was used for cooking purposes; this seems now difficult to obtain in England, though in Scotland it is still sold by the sack as "kitchen salt." "Coarse salt," Dr. MacPhail states, contained impurities such as bromides, iodides, and calcium salts, and he raises the question whether it was the presence of calcium which rendered the salt deliquescent. We have made some inquiries, and are advised that it is improbable that refinement removes any substance likely to be useful to man. "Coarse salt" formerly sold for cooking purposes did not differ much in composition from the finer kind sold nowadays for table use; it appeared to be more deliquescent, because it had a different texture or aggregation of crystals. If evolutionary selection may be trusted, it points to the conclusion that sodium chloride is better suited to man when freed from companion substances. So far as we can ascertain, no surviving race uses crude sea water to supply its need of dietetic salt. Even if table salt were composed of pure sodium chloride, the missing calcium and magnesium salts would be abundantly replaced from bread, meat, vegetables, milk, and water. The supply of iodine might perhaps be more uncertain to a population who had no food from the sea. Yet, remembering the mystery of where the fluorine which is always present in teeth and bones may come from, it would be no wonder if the iodine were also forthcoming. According to our information, however, the salt supplied for the table is not refined in the sense suggested. It has only been rendered non-hygroscopic by the addition of sodium phosphate. It appears to be an inborn instinct that good is to be gained by swallowing substances other than those of ordinary diet. When the instinct is lost speculative hypothesis or reasoned judgement takes its place. It was said that this idea was the basis of the suggestion to add sodium phosphate to table salt, the purpose being to supply a deficiency needed as food for the brain. A table salt containing sodium phosphate was accordingly put on the market and duly advertised. The need for a brain food was not, however, a lasting idea. But while the interest in brain food was evaporating, both the manufacturer and the public had made a new discovery. The addition of sodium phosphate to the salt had prevented it from growing moist in damp weather, a result obviously due to the fact that the calcium and magnesium chlorides present in ordinary table salt had been transformed into phosphates which are not hygroscopic; the sale of the article thus became established on a new foundation.

AMERICAN PROPAGANDA FOR THE PREVENTION OF BLINDNESS.

THE National Committee for the Prevention of Blindness is an American society of much vigour and enterprise. In the last few years it has taken up with enthusiasm propaganda in favour of the extension of "myope classes" in the States, or, as they are there commonly called, "sight-saving classes." These classes were started first in London, under the aegis of the London County Council, in 1908. They are now to be found in most of the large towns in this country. The first transatlantic class of the kind was established in Boston in 1913; since then they have undergone rapid extension throughout the States, owing largely to the vigour of the efforts of the committee mentioned. This committee issues a periodic review, *The Sight-Saving Class Exchange*, which is found to be a great help to teachers of these classes, keeping them in touch with the latest experiences of others doing the same work. The committee has now issued a general report on sight-saving classes,[1] their organization and administration, written by Miss Hazel Hadley, director of special classes of the Ohio State Department of Education, and Miss Winifred Hathaway, associate director of the National Committee. It contains details of the aim and methods of these classes, the types of children who are benefited, the usual practice as regards medical supervision, and the relation of the classes to the common schools and to the State authority. The problems of the rural communities in dealing with children with defective sight are considered and the way in which difficulties may be overcome is indicated. It is held that the teachers of these classes need some special training. New York State now requires that the teachers should have, in addition to the qualifications for grade teachers, sixty hours of specialized pedagogic training, thirty hours of clinical eye work, and thirty hours of physical education. Many other States are providing similar extra training. Some of the universities arrange special summer courses. Finally, Mr. Lewis Carris gives a summary of the provisions in the State school laws under which sight-saving classes may be organized. In some States the law is permissive, the decision whether such classes should be established being left to the judgement of the local board of education. In other States the law requires the district to establish a sight-saving class wherever there is a minimum number of pupils with such defects of vision. The report is brief and to the point, and should be of service to school medical officers in this country. This same National Committee, in conjunction with the American School Hygiene Association, and the latter with the American Public Health Association, held joint sessions in an American Health Congress,[2] last year, to discuss the relation of venereal diseases to vision impairment and venereal disease control. Dr. Brooke Bland, professor of obstetrics, Jefferson Medical College, Philadelphia, laid stress on the fact that in an infant affected with ophthalmia neonatorum the whole body is sick, other structures besides the eyes being affected. He cited an epidemic that broke out in one of the maternity hospitals of his city in which, during two months of 1924, there were born 182 babies, of whom 67 were infected with gonorrhoea, 55 developed serious joint complications, and others suffered from perirectal suppuration. The institution had to be closed for four months. The source of the infection was traced to a negro laundress who had acute gonorrhoea. Her work was the preparation of the clothing of the infants, and it was thought the infection was transmitted by her with the clothes. The variety of the clinical manifestations in this epidemic was remarkable. In a paper describing the work of the venereal clinic at Detroit the director, Dr. Ray Dixon, gave an account of a most businesslike organization. Every known means of reducing the clerical and administrative duties of the doctors is adopted, so that their work shall be scientific and clinical alone. The patients are interviewed beforehand, and the final instructions of the doctors are communicated to them by the nurses who attend on the doctors. It is said that nurses will go on repeating instructions to the patients with patience and urbanity, whereas the doctor gets tired of reiterating the same instruction. One regulation of the clinic is of interest, and warrants investigation: "The

[1] Sight-Saving Classes: their Organization and Administration. Publication No. 30 of the National Committee for the Prevention of Blindness. New York, 370, Seventh Avenue. 1927. Pp. 50.

[2] American Health Congress, Atlantic City, New Jersey, 1926, Vol. iv. National Health Council. New York, 370, Seventh Avenue. 1926. Pp. 75.

doctors are changed about from desk to desk at not greater than weekly intervals. This keeps the various doctors continually using each other's records. This, we find, tends to secure greater care in the making of a diagnosis and to procure more accurate records for the doctor who is to use them later. It keeps the doctor out of a groove and effectively stops any attempt of the doctor to get a following in the clinic." Another point of interest is the advantage claimed of allowing several patients to be present during examinations and treatment. "We form lines of men within the treatment room so that a patient may see ten or more persons examined and treated before his turn comes. A man hears over and over again a story that is likewise told to him. He sees Wassermann taken, darkfields taken, salvarsan prepared and administered." Later, "when some friend tells him that a little calomel powder will remedy an ulcer he will unwittingly be a health agent for us in his talk with his fellow workman, for he knows this is dangerous treatment and that a Wassermann and darkfield and treatment are necessary."

SULPHUR DIOXIDE AS A FOOD PRESERVATIVE.

IN view of the Food Regulations which came into force last January, limiting the use of preservatives to sulphur dioxide and benzoic acid, and those only in certain scheduled foods, the Ministry of Health recently published a report (No. 39 of the series on Public Health and Medical Subjects) on the methods for the determination of benzoic acid. This was noticed in our issue of May 28th, 1927 (p. 973). The Ministry has now issued another report (No. 43), also by Dr. G. W. Monier-Williams, on the determination of sulphur dioxide in foods. Sulphurous acid combines with aldehyde and ketone groups in foods, but is separated rapidly on addition of alkali, and more slowly on distillation with acid. The former method, it appears, may give good results with some foods, but only through a balancing of errors. The only reliable method for the majority of foods is distillation, with the necessary precautions against oxidation. Distillation is most satisfactory when done in a current of carbon dioxide through a reflux condenser into pure hydrogen peroxide. In dried fruits the last traces of sulphur dioxide are given off with extreme slowness on boiling, even in a strongly acid solution, and preliminary treatment with sodium bicarbonate does not make any appreciable difference to the result. In nearly all cases accuracy is obtained from gravimetric determination as barium sulphate. The report does not lay down a definite method for the determination of permitted preservatives, but Dr. Monier-Williams observes that the estimation of sulphur dioxide does not present the same difficulties as benzoic acid, and that the original method of Haas in 1882, with unimportant modifications, has been found to be satisfactory by almost every worker. It is interesting to learn that the amount of sulphur dioxide in foods decreases with keeping; and that there is very little evidence in support of the alleged natural occurrence of sulphur dioxide in beers, wines, and other articles of diet, except in infinitesimal and negligible quantity.

MEDICAL HYDROLOGY.

THE International Society of Medical Hydrology will hold its annual meeting this year in Italy from October 12th to 17th, under the honorary presidency of Signor Mussolini. Professor Senatore Gabbi of Parma is president-elect. The members will assemble at the University of Rome on October 12th for a discussion on the "Uses of water in acute disease," introduced by Professor Strasser of Vienna. They will be entertained afterwards at Montecatini, and will take part in the official opening of a new bath establishment at this State spa. Papers will be read on the "Biological and physical properties of medicinal waters," on their effect on immunity, and on their action on ferments. The list of speakers includes Professors Valenti, Marfori, and Chassevant, Drs. Mougeot, Ferreyrolles, and Burt, Messrs. Woodmansey and Race. Professor Zörkendörfer will speak on the "Processes of change in medicinal waters," and Dr. Judd Lewis will bring forward proposals for international standards of analysis and measurement. The society is also invited to Salsomaggiore, and may have the opportunity of visiting the University of Parma. The council will welcome the presence of a certain number of medical non-members who are interested in the objects of the society. More than a hundred names of members and their friends have been already inscribed for the tour, but the list is still open. Reduced fares and other privileges are offered. Particulars as to cost, etc., may be had from the honorary secretary, International Society of Medical Hydrology, 139, Marylebone Road, W.1.

THE LISTER LECTURE.

BEFORE the Lister Lecture, which, as announced last week, will be given by Professor von Eiselsberg of Vienna at the Royal College of Surgeons of England at 5 p.m. on Thursday, July 7th, a reception will be held from 3.30 to 5 p.m. in the museum, where the specimens added during the year will be on view. Members of the profession who desire to inspect the collection and to hear the lecture are invited to attend. The election of members of Council will have been held during the morning of the same day, and Fellows who have not already voted are reminded that July 7th is the last day upon which votes can be received.

THE memorial in Tavistock Square to Dame Louisa Aldrich-Blake, M.S., formerly Dean of the London (Royal Free Hospital) School of Medicine for Women, who died on December 28th, 1925, will be unveiled on Monday next, July 4th, at 11.30 a.m., by Sir William Beveridge, K.C.B., Vice-Chancellor of the University of London. The memorial is in the south-east corner of the square, 200 yards from the House of the British Medical Association.

THE Australian and New Zealand Medical Association in England held its annual dinner at the Piccadilly Hotel, London, on June 17th, under the chairmanship of Mr. Joseph Cunning. This young but flourishing association, which owes its birth to the enterprise of its honorary secretary, Mr. E. T. C. Milligan, renders valuable assistance to young graduates from Australasia who are seeking appointments in England; and by means of its annual dinners affords them the opportunity of meeting one another and entertaining distinguished visitors. This last occasion was of special interest and importance, for the guests of honour were Sir John Bland-Sutton, Professor Colin Mackenzie, and Dr. Zwar, who was able to explain in some detail the latest developments of the project for founding the College of Surgeons of Australasia; its purpose and regulations were fully stated in our issue of April 30th (p. 810). Sir John Bland-Sutton, in a characteristically witty and graceful speech, said how interested he was in this great enterprise, and assured his hearers of the sympathetic consideration of the Council of the Royal College of Surgeons.

ON the occasion of the centenary of the Faculty of Medicine of the Egyptian University, Cairo, the Egyptian Government has decided to organize a medical congress in Cairo, to deal especially with tropical medicine and hygiene. The congress will take place in the winter of 1928, probably in November or December. The constitution of the organization committee will shortly be announced officially. It is understood that invitations will be sent to universities and institutions particularly interested in tropical medicine and hygiene and their branches.

NINETY-FIFTH ANNUAL MEETING
of the
British Medical Association,
EDINBURGH, 1927.

Scott Monument.

THE ninety-fifth Annual Meeting of the British Medical Association will be held in Edinburgh this month under the presidency of Sir Robert Philip, M.D., LL.D., honorary physician to the King in Scotland, who will deliver his address to the Association on the evening of Tuesday, July 19th. The scientific and clinical work of the meeting will occupy the three following days, and will be divided among twenty-one Sections. The names of the officers of Sections and other preliminary announcements were published in the SUPPLEMENT of June 25th; the full programme of scientific business and further details of the arrangements for the Annual Meeting will appear in a later issue. The Annual Representative Meeting, for the transaction of medico-political business, will begin on Friday, July 15th. On the last day of the meeting (Saturday, July 23rd) there will be an excursion to Fife and St. Andrews. We print below the fifth of a series of descriptive and historical notes on the Scottish metropolis and its relations with the science and practice of medicine. The first article, published on December 4th, 1926, dealt with old Edinburgh and the beginning of the Medical School; the second, on January 1st, with the Medical School from 1726 to the middle of the nineteenth century; the third, on March 26th, with Edinburgh medical institutions; and the fourth, on June 4th, with the University and Royal Colleges.

It has been decided to make the Edinburgh celebrations of the centenary of Lord Lister's birth coincide with the Annual Meeting of the British Medical Association. A book dedicated to Lister's life and writings has been prepared for the occasion, and throughout the week a museum of Lister relics will be on view in the Upper Library of the old University. On Wednesday, July 20th, at 8 p.m., a public meeting will be held in the McEwan Hall, with the Earl of Balfour, K.G., in the chair, when short commemorative addresses will be delivered.

EDINBURGH AND ITS SURROUNDINGS.

EDINBURGH is a city which happily mingles in its architecture the ancient and the modern, together with many natural beauties. The Castle Rock, under the name of the Castle of the Maidens, has been used from prehistoric times as a fort, but came for the first time clearly into the light of history when Malcolm Canmore made it one of the royal seats, although Dunfermline was then the chief place of government. While besieged in Edinburgh Castle in 1093 Queen Margaret received the fatal news of the death in battle of her husband and elder son, and by a small postern gate the youthful princes escaped in a providential mist from the besieging forces of Donald Bane, carrying with them their mother's corpse.

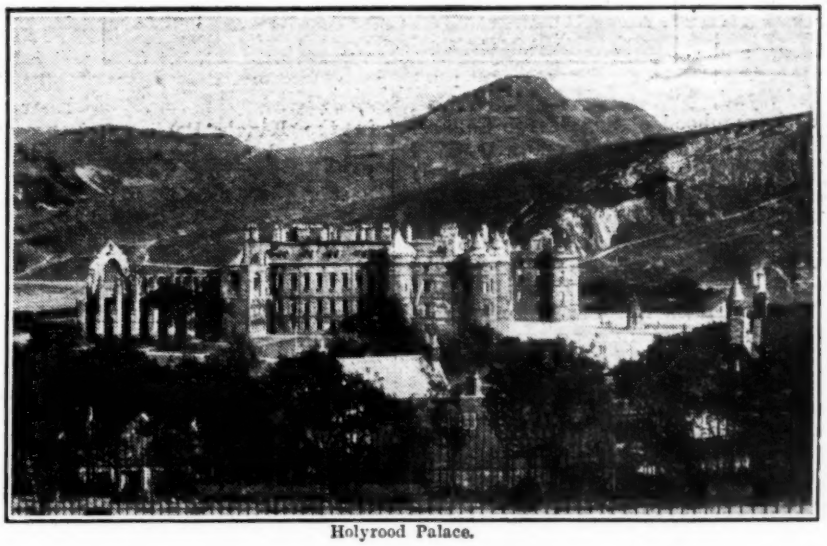
Edinburgh from Salisbury Crag.

The castle and town were repeatedly taken and retaken, burnt and rebuilt during the war of independence against Edward I. In the time of Robert the Bruce the city received its first charter, and the early parliaments were held in the banqueting hall of the castle. The brilliant Court of James IV, to which ambassadors came from all the Courts of Europe, met here in the end of the fifteenth century. Several portions of the old town wall, built immediately after this king's disaster at Flodden, can still be seen. Immediately before the Reformation, in 1544, Edinburgh suffered a great disaster when the city was captured by an English army under the Earl of Hertford, and continued burning for three days. The citizens had little time to remove their valuables to the safety of the castle, and most of what was interesting in Edinburgh perished at that time. At the Reformation, about 1560, the destruction of most of the old religious houses was completed.

Much romance, however, clusters round Holyrood at this date—the Court of Mary Queen of Scots, the murders of Rizzio and Darnley—and round the castle, which held out, during a prolonged siege, on behalf of the unfortunate queen. Later history includes the founding of the Town's College under James VI, the troubles of the Covenanters, with the incident of "Jenny Geddes's stool," the signing of the Covenant in Greyfriars churchyard, the numerous instances of "martyrdom for conscience sake," and the execution of the rival leaders Montrose and Argyle. As the

scene of portions of several novels by Sir Walter Scott, romance clings to numerous streets and buildings in the city. In 1745 Holyrood was again associated with military scenes, when Prince Charles Edward took possession of the palace. Finally, in the great war, Edinburgh was the centre of great naval activity, when the Firth of Forth formed the rendezvous for the allied fleets, and when the surrendered German fleet was received here in November, 1918.

With regard to buildings of historic interest, the chief shrine of Scottish history is the small Norman chapel of St. Margaret, preserved on the Castle Rock. It forms a visible record of the Norman culture which spread to Scotland in the eleventh century, and of which the ruined abbeys scattered through the country are still memorials. St. Giles's Church is in part a beautiful example of fifteenth century architecture. Trinity Church and Hospital were unfortunately demolished to make room for the North British Railway station, but the church was partly re-erected in Jeffrey Street, and the magnificent panels of its altarpiece, restored to Scotland after being looted by the English in 1544 and retained for three centuries in England, are now preserved in Holyrood Palace. The northern wing of Holyrood Palace, with its memories of Mary Queen of Scots, is a striking example of old Scottish baronial architecture. Several instances of fine buildings of the sixteenth century are to be found in Riddel's Close, John Knox's house, Huntly House, and the Chapel of St. Magdalen's Hospital in the Cowgate. Of seventeenth century architecture, George Heriot's Hospital, founded in 1628 as an educational institution by the Treasurer of King James VI, is one of the best examples. Domestic work of this period is to be seen in the houses of the Lawnmarket and in White Horse Close and Bakehouse Close off the Canongate, as well as in the old Parliament House near St. Giles's.



Holyrood Palace.

Owing to the confinement of the burgh within its defending walls till the eighteenth century, houses tended to grow in height, and some of these tall tenements, reaching a height of ten or twelve stories—the tallest buildings erected before the latter part of the nineteenth century—are still to be seen. The new town of Edinburgh, which includes all the extension to the north and west of Princes Street Gardens, was laid out at the end of the eighteenth and beginning of the nineteenth century. Charlotte Square, designed by the brothers Adam, is one of the finest examples of the work of these celebrated architects. Here, at No. 9, Lord Lister practised during his second Edinburgh period. The Register House (1774) and the old University (1789) are memorials of the same architect's work. Numerous traces of a romantic movement and Greek revival in the early decades of the nineteenth century give a special character to parts of the city built in this period. Such are St. John's Church at the west end of Princes Street, Sir Walter Scott's monument, the galleries on the Mound, the monument to Burns, the Royal High School, and the unfinished national memorial on the Calton Hill. The war memorial in the castle has just been completed, to some extent in keeping with the style of the surrounding military buildings, and its opening by H.R.H. the Prince of Wales will coincide with the meeting of the British Medical Association in the present month.

Edinburgh, as the capital city of Scotland, is rich in galleries and museums. The building in Doric style near the centre of Princes Street is the Royal Scottish Academy, the focus of artistic activity in Scotland. The National Gallery, immediately behind it, contains a representative series of works by Scottish artists of the past, and is one of the best and most attractive of the smaller galleries in Europe. The pictures of the Scottish school exhibited here include several canvases by Jameson, the Scottish Vandyke, and Allan Ramsay (son of the poet), a Scottish painter of the eighteenth century. Paintings by Sir David Wilkie illustrative of Scottish ballad and history, by David Scott, Fettes Douglas, Noël Paton, Orchardson, Chalmers, Thomson, and many others are also shown. The Scottish National Portrait Gallery, situated in Queen Street, is a gradually growing collection; it commenced about 1800 with interesting portraits of the early Stuart kings and queens, and includes pictures and engravings of most of the persons who have distinguished themselves in Scottish history. The National Museum of Antiquities, housed in the same building as the Portrait Gallery, includes many objects of antiquarian and historic interest, such as examples of the Stone and Bronze ages, a great collection of memorials of Roman civilization, including the hoard of silver discovered at Traprain Law, Scottish coins, instruments of torture, Highland remains, and the sedan chair in which James Hamilton, the last physician to use such a vehicle, was carried to see his patients. The Royal Scottish Museum in Chambers Street houses a fine collection illustrative of art, natural history, and technology. The City Museum in the Municipal Buildings, High Street, shows an interesting collection of relics connected with the history of Edinburgh, such as old drawings and maps, manuscripts, and articles of personal use that belonged to celebrated Edinburgh citizens.

Among educational institutions the University naturally comes first. Its various buildings were described in the BRITISH MEDICAL JOURNAL of June 4th. Edinburgh possesses an unusual number of secondary schools and has been for many years noted as an educational centre. In allusion to this fact, as well as to its publishing houses and breweries, a baillie of a previous age is said to have replied to a question regarding the chief products of Edinburgh in the words "Boys, books, and beer." In addition to the University the Royal Colleges of Physicians and Surgeons have their halls in Queen Street and in Nicolson Street respectively. The College of Agriculture is situated in George Square, the Royal (Dick) Veterinary College in Causewayside, and the Heriot-Watt College, an institution for technical instruction, in Chambers Street. The Royal Astronomical Observatory on Blackford Hill is a prominent feature of the city, while the Royal Botanic Garden is second in importance only to those at Kew. Here a garden party is to be held during the meeting of the Association. The Zoological Park is beautifully situated on the slope of Corstorphine Hill, and after a contemplated extension will be the largest park of this kind in Europe. Here the Lord Provost and magistrates are to hold a civic reception for the members of the British Medical Association.

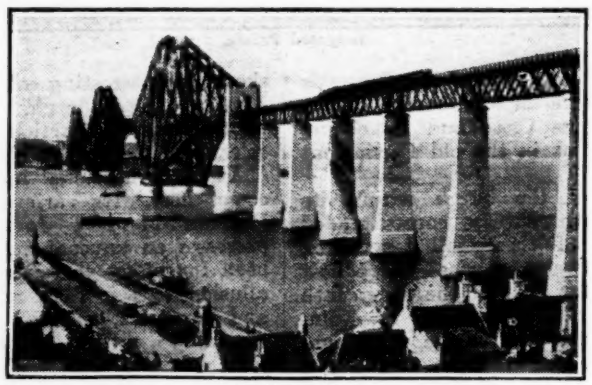
The manufacturing industries at Edinburgh are somewhat overshadowed by the fame of the city as a seat of learning and by its historical interests, but they include

such activities as brewing, distilling, printing, rubber manufacture, biscuit making, and the manufacture of drugs. In the latter respect Edinburgh is one of the chief centres of the world for the manufacture of alkaloids and anaesthetics. To the original establishment of these industries in Edinburgh the presence of a fine harbour and docks at Leith, together with an abundant coal supply from the neighbouring Lothian coal-field, contributed greatly. For nearly a century and a half Edinburgh has been a great banking centre; and the ancestral home of John Law, the great financier of France, is situated at Laurieston Castle on the outskirts of the city, a building recently gifted as a national possession. Insurance companies whose management is situated in Edinburgh are numerous and important, and their accumulated funds exceed a total of £125,000,000. Insurance has been a special feature of Edinburgh commercial enterprise for more than a century.

Princes Street.

The chief literary figures with whom Edinburgh localities are associated are Sir Walter Scott, Robert Louis Stevenson, and Robert Burns. Scott was born at the top of College Wynd, spent his youth and early manhood at 25, George Square, and later resided at 10, South Castle Street, and after 1798 at 39, North Castle Street, where most of his novels were written. So many of the buildings still remaining in Edinburgh are associated with characters described by Scott that he might well, with an air of proprietorship, refer to the city as "mine own romantic town."

Robert Louis Stevenson was born at 8, Howard Place, which is now preserved as a memorial house, containing many pictures, manuscripts, letters, and personal possessions. Later he lived at 17, Heriot Row, but the home he loved best was Swanston Cottage, where the family spent fourteen summers. Here, on the foothills of the Pentlands, the scene of *St. Ives* is laid. The still old-world Dean Village, now a part of Edinburgh, with its crow-stepped gables and sculptured stones, is associated with *Catriona*.



Forth Bridge.

Robert Burns, on coming to Edinburgh in 1786, lodged in Baxter's Close, Lawnmarket. Burns's fame as a poet had preceded him, and he was warmly welcomed by the *élite* of Edinburgh society. The historic meeting between him and Scott, when the latter was 15 years old, took place in 1787 at Sciennes Hill House, immediately off Causewayside; the house, which is still preserved, belonged to Professor Adam Ferguson. Clarinda (Mrs. Maclehose) lived in General's Entry, between Bristo Street and Potterrow. The monument to Robert Burns, a prominent feature on the Calton Hill, was built in 1831.

Among other literary celebrities of Edinburgh may be mentioned Gavin Douglas, Bishop of Dunkeld, who "gave rude Scotland Vergil's page," and whose episcopal palace was in the Cowgate; John Knox, whose house in the High Street is still preserved; George Buchanan, who lived in Kennedy's Close; Allan Ramsay, poet and wig-maker, whose shop stood till recent times near the corner of the North Bridge and High Street; Robert Fergusson, the predecessor of Burns, who died in the city Bedlam, near Bristo Port; Tobias Smollett, who studied medicine at the College of Surgeons; David Hume and James Boswell, who are associated with Riddel's Close and James's Court in the Lawnmarket; Thomas de Quincey, who lived in Great King Street; John Brown, author of *Rab and his Friends*, who had a house in Rutland Street; Francis Jeffrey, who lived in Moray Place; Thomas Carlyle, who occupied a house at Comely Bank, and many others.

Few cities of the size of Edinburgh are so well provided with open-air facilities. It is possible from any part of Edinburgh to reach the open country on foot in less than half an hour. On the outskirts lie the King's Park, Blackford Hill, and the Braid Hills, the pleasantly wooded Corstorphine Hill with its zoological park, and, further off, the Pentland Hills. Within easy reach by car are numerous golf courses. That on the Braid Hills belongs to the city. Private courses, such as Mortonhall, the Burgess Club, the Bruntsfield Club (founded in the eighteenth century), Baberton, Cammo, Torphin, Duddingston, Kingsknowe, and Murrayfield, are in immediate proximity to the town. Several celebrated courses, such as Gullane, Luffness, Muirfield, and North Berwick, lie along the Lothian coast within easy reach by train.

In every direction round Edinburgh the countryside is full of historic associations. Near the Loch of Duddingston in the King's Park are Peffermill House, the home of the Laird of Dumbiedykes, and David Dean's house at St. Leonards, celebrated in *The Heart of Midlothian*. A little further off stands Craigmillar Castle on a ridge overlooking the town. This ancient castle dates from the twelfth century, and formed one of the favourite residences of Mary Queen of Scots. Here a pageant of Scottish history is to be enacted during the visit of His Majesty the King on July 15th and 16th. Beyond the ridge lies the old town of Dalkeith with Dalkeith Palace, the seat of the Duke of Buccleuch, and Newbattle Abbey, the seat of the Marquess of Lothian, in its immediate neighbourhood. Further to the south is the ruined Crichton Castle with its ancient collegiate church, and Borthwick Castle, one of the best preserved of old Scottish fortresses.

Eastward from Edinburgh, in a few miles one comes to Musselburgh, where the links have long been famous for archery, golf, and horse-racing. Near the links once stood an ancient hermitage, dedicated to Our Lady of Loretto, and here is now situated a public school of world-wide reputation. A bridge of the mediaeval period spans the river Esk. In the immediate neighbourhood the battle of Pinkie was fought on "Black Saturday," in 1547, when the Earl of Hertford defeated the Scottish army with, it is said, the death of 10,000 Scots. At Carberry Hill, on the slopes above Pinkie, Mary Queen of Scots twenty years later surrendered to the Confederate Lords to be imprisoned in Lochleven Castle. Six miles further on is Prestonpans, where Prince Charles Edward, in 1745, routed Sir John Cope's army. Seventeen miles east of Edinburgh is the ancient burgh of Haddington, picturesquely situated on the river Tyne and a royal residence in the twelfth century. The historic parish church, dating from the thirteenth century, is known as "The Lamp of Lothian," and in the town John Knox, the Scottish reformer, was born. Here, too, is a bridge dating back to the twelfth century. A few miles south of Haddington is Gifford with Yester Castle, erected in the thirteenth century, and having beneath it the Goblin's Hall, an underground passage, of which Sir Walter Scott speaks in *Marmion*. Dirleton Castle, near North Berwick, is an early thirteenth century building, and beyond North Berwick stands the massive

ruin of Tantallon Castle, a stronghold of the Douglas family, associated with many tragic scenes in Scottish history. Opposite North Berwick in the Forth stands the Bass Rock, famous as the home of the solan goose, and possessing an ancient castle and prison. It is interesting to recall that when William Harvey came to Scotland in 1633 with Charles I he visited the Bass Rock, of which and of the habits of the solan goose he has left a graphic description.

Southwards from Edinburgh, the Pentlands lie about two miles from the edge of the city, with Swanston, the home of Robert Louis Stevenson, embosomed on their northern slope. On the southern slope lies Rullion Green, the field of a Covenanting battle in 1666. Here, amid beautiful scenery, a memorial religious service will be held on July 17th. Close to Rullion Green is Penicuik, the site of modern paper mills, and once the home of Alexander Penicuick, surgeon general to the army which accompanied Charles II to the disastrous field of Worcester. The ancient town of Peebles, ten miles south of Penicuik, is situated pleasantly among hills and pastoral scenery. This was a favourite resort of the Stuart kings, from which arises the old saying, "Peebles for pleasure." It is commemorated by the royal poet, James I, in "Peblis to the Play." From Peebles a road along Tweedside leads through much of the country celebrated by Sir Walter Scott. Innerleithen is the scene of *St. Ronan's Well*, and in the immediate neighbourhood of this small town stands the old house of Traquair, the original of Tully Veolan in *Waverley*. Here, too, is the ruined peel of Elibank, an ancient seat of the Murrays, where young Scott of Harden, captured on a raid, was given the choice of being hanged or of wedding "Muckle-mou'ed Meg," the daughter of Sir Gideon Murray. His choice of the latter alternative was the prelude to a long and happy life. The neighbouring town of Galashiels was celebrated as a rallying-point in border warfare, and close to it stands Abbotsford, the home of Sir Walter Scott. Four miles onwards are the ruins of the beautiful Abbey of Melrose, founded by David I in the twelfth century, and destroyed in the wars of the sixteenth century. In *The Lay of the Last Minstrel* Scott lovingly describes the hallowed ruins, while in *The Abbot* a picture is given of their decay. Not far off is the ruin of Dryburgh Abbey, founded by the same king and destroyed by the English in the sixteenth century. It is beautifully situated by the river, and in this quiet spot Sir Walter Scott is buried along with his wife, his son, and Lockhart, his biographer. On the hillside above the abbey stands Bemersyde, presented by the nation to Earl Haig, and identified with his family in the old prophecy:

> "Tide—tide—whate'er betide,
> There'll aye be a Haig at Bemersyde."

Still proceeding eastwards, the road comes to the town of Kelso, likewise the site of a ruined abbey, founded by David I. Close to this town stands Floors Castle, the home of the Duke of Roxburghe. Here King James II was killed in 1460 by the bursting of a cannon used to bombard the castle of Roxburghe on the opposite side of the river, at that time in possession of the English. The castle and its surrounding town of Roxburghe have completely disappeared, only a few mounds being left to show where this prosperous burgh stood in the Middle Ages.

Westwards from Edinburgh some nine miles the railway crosses the Firth of Forth on the celebrated Forth Bridge. In the immediate neighbourhood are Dalmeny, the seat of the Earl of Rosebery, and Hopetoun, the mansion of the Marquis of Linlithgow. A few miles further on the old town of Linlithgow retains memories of the early Scottish kings. It was a favourite residence of James IV. James V and Mary Queen of Scots were both born here, and although it was burned in 1746 by the Duke of Cumberland's soldiers, it is still the finest example of Scottish baronial architecture. Adjoining the palace is the historic church of St. Michael. A short distance south of the town is the house of Kipps, the residence of Sir Robert Sibbald, one of the founders of the Royal College of Physicians of Edinburgh, and some distance beyond this is the little town of Torphichen, where stands the Preceptory of the Knights of St. John of Jerusalem, founded in the twelfth century, and the home of much medical and military enterprise in the Middle Ages.

On the north, Edinburgh extends to the Firth of Forth, beyond which lies Fifeshire, a county with a history of its own. Some miles beyond the Forth Bridge is Dunfermline, the royal residence of Scotland in the days of Malcolm Canmore and Queen Margaret, who landed in Scotland at St. Margaret's Hope close to the bridge. The old Abbey of Dunfermline is the burial place of Robert the Bruce and is an interesting Norman structure. In this town Andrew Carnegie was born and spent his earlier years. In the centre of the county lies Loch Leven, with its island and castle, celebrated as the prison of Mary Queen of Scots. Some miles off is Falkland Palace, a favourite residence of the Scottish kings, and the scene of events described in *The Fair Maid of Perth*. Eastwards from Falkland lies Cupar, the county town. Round the town are several ancient mansions, including the castle in which Macduff's wife and children were murdered by Macbeth. Ten miles eastwards on the seashore lies St. Andrews, celebrated for its golf course and for its university, founded in the fifteenth century. The castle was the centre of the Reformation, being associated with the burning of George Wishart by Cardinal Beaton, which led to the assassination of the latter when the castle was subsequently captured. Many remains of ancient religious buildings give this town a unique old-world interest.

EPSOM COLLEGE.

THE annual general meeting of the Governors of Epsom College was held at 49, Bedford Square, on June 24th. Dr. RAYMOND CRAWFURD was in the chair.

The CHAIRMAN described the progress that had been made in the development of the College during the past year. A new chemistry block had been added which probably surpassed any similar building to be found at any other school. A good deal of money had been spent on heating arrangements, and an annexe had been put up in the lower school for washing, dressing, and drying. As it had been found that there was very little demand for the lower school, and much for boys of a higher age, the age for lower school boarders had been raised. Various gifts had enabled the council to embellish the large schoolroom with panelling, and to build a new cricket pavilion. Money was now being collected for the construction of a new sanatorium. The old building, which was deemed unsuitable for an infirmary, would provide accommodation for forty more boarders. The report of the council was adopted; and Dr. Napper, who had served on the council for a great many years, was elected a vice-president of the institution.

Pensions and Scholarships.

It was reported that the following were the successful candidates:

Pensionerships:	Votes.
‡Chepmell, Charles W. J.	7,411
*Dawson, Fanny	6,798
*Raper, Augusta M.	6,456
†Mullings, Harriet E....	5,617

* "Ordinary" pensioners. † "Sir Thomas Smith" pensioner. ‡ "Christie" pensioner.

Dr. Edward J. Minchin (3,117), Mrs. Grace S. W. Dempster (854), and Mrs. Florence A. Swindlehurst (411), who were among the unsuccessful candidates, were at a subsequent council meeting appointed ordinary pensioners under By-law 16, through vacancies having arisen.

Foundation Scholarships:	Votes.
Stephens, John C.	12,442
Joy, Charles H. F.	11,643

Special Scholarships.

The council will shortly award the following special scholarships:

Leopold Salomons Entrance Scholarship.—The value of this scholarship is £50 a year, and it will be awarded to the son of a duly qualified medical man. Candidates must show an adequate standard of education for their age, and their financial position must be such as to make it impossible or difficult to obtain an education at Epsom College without the help of the scholarship.

St. Anne's Home Scholarship.—The value of this scholarship is £52 a year, and it will be given to a deserving and necessitous orphan daughter of a medical man who has been for not less than five years in independent practice in England or Wales.

Further particulars and forms of application can be obtained from the Secretary, Mr. J. Bernard Lamb, at the Office of the College, 49, Bedford Square, W.C.1.

Scotland.

MACEWEN MEMORIAL LECTURE.

THE first Macewen Memorial Lecture was delivered in the University of Glasgow on June 21st by Professor Harvey Cushing of Harvard University. The lecture was given in the zoological theatre to past and present students of medicine, and there was a large attendance. Principal Sir Donald MacAlister presided. Professor Cushing traced the development of neurological surgery since Macewen's time, and indicated the advances made, particularly in operations for the removal of cerebral tumours.

CANCER IN SCOTLAND.

In an address given before the Glasgow Royal Medico-Chirurgical Society last February Sir George Beatson discussed the present position of the cancer problem and the duty of the medical profession towards the public. After a brief description of the characteristics of cancer, and of the various experiments which have been devised to throw light on its nature and causation, the cancer death rate and the distribution and relative liability of the different organs of the body to attack were considered; and finally, the treatment, prospects of cure, and the attitude that medical men and the public ought to adopt towards these questions. The fundamental contention of Sir George Beatson is that cancer is, at the time of its first appearance, strictly localized, and that if its site of origin is excised at that time cure will result. Apart, then, from rodent cancer, which is curable by irradiation, the whole gospel of cancer treatment may be summed up in the dictum "early diagnosis, early excision." No other measure should be thought of in the early stages; the idea of any drug or serum or vaccine being available should be dismissed at once, and, above all, the nostrum of the quack or "cancer-curer." As bearing on the question of the possibility of making early diagnoses, statistics are given of the incidence of the disease in different parts of the body, and it is shown that a considerable number—though not the majority—of cancers arise in positions in which early diagnosis and early excision are possible. The late Mr. Charles Childe went fully into this question, and came to the conclusion that in males at least one-third of all cancers, and in females one-half, are capable of early removal and cure. A practical appreciation of these facts should, Sir George Beatson contends, result in a considerable reduction of the death rate from cancer, which on the basis of the latest annual return of the Registrar-General for Scotland, amounts to one woman in six and one male in seven of the population over 40 years of age. Numerous statistics prove the value of early operation, but this was dependent on early diagnosis. Sir George Beatson concluded by urging the need for vigorous propaganda.

MOSQUITOS IN RENFREWSHIRE.

Reference was made in the BRITISH MEDICAL JOURNAL of June 4th (p. 1029) to a case brought before Sheriff Hamilton at Paisley in which it was alleged that certain ditches in the district of Muirend, Cathcart, were breeding places for mosquitos and were a nuisance under the Public Health Act. The action was brought by the upper district committee of the county of Renfrew against the trustee of the late Mr. Allan Woodrop of Dalmarnock, craving the court to find that there existed upon the land of Muirend in the parish of Cathcart ditches so overgrown with vegetation and in which the flow of water was so impeded as to cause stagnation and breeding places for mosquitos, and to ordain the defender to remove this nuisance. Sheriff Hamilton, having considered the proof, found that the ditches were in close proximity to a residential district on the outskirts of the city of Glasgow; that the ditches through the neglect of the defender had become so encumbered with silt and vegetation as to be ineffective for watercourses; that the ditches and adjacent ground had thus become a breeding ground for large quantities of mosquitos; that the mosquitos had invaded the residential district and attacked the residents; that the bites excited pain and swelling, causing in some cases temporary incapacity and followed in some instances by septic sores; and that there was a reasonable probability of repetition of these conditions in following years. He found in law that the said ditches were a nuisance and injurious or dangerous to health in the sense of 16 (2) of the Act 60 and 61 Vict. Cap. 38. He therefore ordered the defender to clear the said ditches of the silt and vegetation with which they were encumbered, and thereafter to maintain them clear of silt and vegetable growth. As a note to his judgement the Sheriff remarked that it was proved in his opinion that in the autumn of 1926 mosquitos were in and about the houses of the district in such quantities as to cause pain, discomfort, and apprehension among the residents to a very substantial extent. This attack produced in those actually bitten various degrees of pain, swelling, irritation, sleeplessness and risk of septic poisoning, when the irritated part was rubbed, to such an extent that the community had been deprived of the freedom of being in the open-air or having windows open in fine weather. A comparison was made with the nuisance at common law which has been held capable of being caused by flies produced by a person who keeps an unusual or excessive collection of manure, and who therefore may be held guilty of a nuisance. It was pointed out that a watercourse kept in such a way that it overflowed and obstructed the highway would be a nuisance at common law but not under the Public Health Act, while a watercourse, so kept that its state had the results described in this case must be held as a nuisance also under the Public Health Act. The danger of the mosquito as a carrier of malaria was also touched upon. It was pointed out by the Sheriff that for malarial infection there are necessary: (1) a mosquito of, *inter alia*, the species named *Anopheles bifurcatus*, of which the larva was found in quantity at Muirend in April; (2) a person who has malaria from whom in biting the insect obtains the malarial germ; and (3) a mean temperature of at least 60° F. for sixteen days or thereby, while the malarial germ matures in the mosquito. While it seemed from the available statistical evidence that the attainment of the necessary mean temperature in Scotland was unlikely, there was the chance that the insect, by remaining indoors, might enjoy the necessary temperature. It would appear to be a scientific deduction from the Kirriemuir case that malaria had once in recent years been conveyed in Scotland, and it was remarkable that the average temperature had not altered from the period when malaria or ague was a comparatively common complaint in Scotland. The defender in the case tried to make a separation between the ditches and the mosquitos, alleging that although the mosquitos were looked upon as a nuisance the ditches were no nuisance, even on the assumption that they were in such a state that they might produce a nuisance. The Sheriff regarded this as equally fallacious with saying that a drain producing fever germs was no nuisance because the fever germs were the cause of the mischief. The defender also endeavoured to plead that mosquitos were *ferae naturae* or stray animals, and that, as in the case of rabbits, the proprietor invaded might defend himself by killing them. This argument was, however, rebutted by the Sheriff, who confined himself to emphasizing that the nuisance complained of was not the presence of mosquitos at Muirend, but the surplus due to the specific matter of the ditches being in bad order, and he, therefore, specifically ordered the defender to clear these ditches and maintain them reasonably clear. If after this mosquitos, in troublesome quantities or not, still remained at Muirend, they must, in his opinion, be ascribed to influences not complained of in this case.

PROPOSED CRIPPLE HOSPITAL IN EDINBURGH.

A meeting was held on June 23rd in the City Chambers, Edinburgh, in regard to a Central Cripples' Hospital for Edinburgh and the south-eastern area of Scotland. Lord Provost Stevenson presided. Sir David Wallace said that much work had been done in connexion with the scheme. Throughout the south-eastern counties of Scotland prominent men had undertaken to give every assistance in their

power, and they had now to think about how best to raise the money for the scheme. The cripple child, with whom this scheme proposed to deal, in many instances required very prolonged treatment, and this scheme, in addition to assisting the cripple child, would benefit the hospitals by relieving the waiting lists. By treating the child at an early stage crippling might be prevented altogether, and in other cases its results would be minimized. Continuity of treatment was also a marked feature of their organization, and was to be co-ordinated throughout the whole of the south-eastern area. All the hospitals were to be associated with the Central Hospital, and all agencies at present dealing with the conditions were to be utilized. In some cases years of treatment might be necessary, and the patients could then be treated in their own homes, or at clinics in the neighbourhood. If the scheme were carried through the maintenance of these patients could be got from local and departmental grants, and they had reason to believe that the Board of Health approved of the scheme, The Rev. Dr. Ratcliffe Barnett, in commending the scheme, said that a great percentage of cripple children could be made into wage-earning men and women, and when the enormous saving in rates effected by this was considered, another advantage of the scheme became obvious. The scheme was a splendid piece of patriotism, and could effect a great deal of human salvage, as was being done in England and in America. The committee estimate that 75 beds will be required in the new hospital, and that the probable cost is about £75,000, including a sum for purchase of a site and for the building and equipment of the hospital. Practically no endowment or maintenance fund will be necessary, for the whole cost of maintenance of necessitous patients up to the age of 16 years will be provided, half from parliamentary grants and half from local authorities.

Gift to Edinburgh University.

A hall of residence for male students attending the University of Edinburgh, to be called Cowan House, is in process of formation as the result of previous gifts, amounting to £30,000, by Mr. Thomas Cowan, retired shipowner, Leith, to the University. At a meeting of the University Court, on June 13th, it was intimated that Mr. Cowan had presented to the University a further sum of £40,000, the interest on which was to be used to meet current administrative and maintenance costs connected with the house. Mr. Cowan is also well known locally as a generous benefactor of Leith Hospital and other institutions.

Fraudulent Cancer Cure.

A shipmaster, who claimed to have a cure for cancer and rheumatism, of which the ingredients were found to be cinnamon, cane sugar, seaweed, and a preparation of phosphorus, appeared at Glasgow Sheriff Court on June 16th, charged with fraud. He had written a letter in a Glasgow newspaper, stating that he was a sea captain and that he had discovered in Jamaica and in Greenland a cure for cancer. He appears, however, to have accepted money from persons writing to him for bottles, and to have failed to send them any medicine. He was found guilty and sentenced to two months' imprisonment.

Ireland.

Irish Medical Association.

At the annual general meeting of the Irish Medical Association, held in the Royal College of Surgeons, Dublin, the annual report and statement of accounts were adopted. The new President (Dr. H. T. Warnock, Donegal) took the chair, a hearty vote of thanks for his services being accorded to the outgoing President, Dr. F. C. Purser. The President, in the course of his address, referred to the happy settlement of "the knotty question of registration" during the past year, and paid tribute to the members of the medical profession in the Dail and Senate for their efforts in this direction. Appealing for support for the association, he suggested that senior students should be admitted as members at a nominal subscription. Their ambition, he said, should be to make the association a real Irish association. A resolution thanking the new President for his address was adopted unanimously.

Cancer Research in Ireland.

The Marquis of Dufferin and Ava presided at a public meeting, held recently in the Royal College of Surgeons, Dublin, in furtherance of the National Cancer Campaign in Ireland. Amongst those present were the Governor-General of the Irish Free State, Professor T. G. Moorhead, Sir Humphry Rolleston, Regius Professor of Physic at Cambridge, Professor Harvey Cushing of Harvard University, and Dr. Louis Cassidy, Master of the Coombe Hospital. The chairman, in the course of his speech, outlined the history of the cancer research movement in Ireland, which had its beginning in the Coombe Hospital. After working for two years in that institution the conclusion was arrived at that a thorough scientific investigation into the cause of cancer was beyond the resources of the hospital. Modern investigation into the problem demanded the services of a very highly skilled and trained personnel, and the laboratory in the Coombe was limited both in personnel and scientific investigators. Therefore, the whole department was moved from the Coombe to the Royal City of Dublin Hospital, the authorities in the latter institution realizing the possibilities that might accrue from the opening of such a department where clinical and scientific investigation might go hand in hand. This transference could not be done without money, and the financial problem was only solved by the munificence of the Red Cross and Order of St. John in Ireland, and the generosity of others. Having secured the money for premises and equipment, steps were taken to enlist the co-operation and support of the scientific bodies in Ireland in the formation of a committee, and the Royal Academy of Medicine in Ireland issued invitations to the various scientific bodies asking them to send representatives to a meeting at which the whole question of cancer research would be considered. Representatives were sent from the Royal Academy of Medicine, Trinity College, Queen's University, Belfast, the Royal College of Physicians of Ireland, the Royal College of Surgeons in Ireland, the Royal Dublin Society, and the Red Cross and Order of St. John, who appointed honorary officers to inquire throughout the world for a trained personnel for the proposed laboratory. Dr. Itami of Osaka University, Japan, was appointed director, and Professor T. G. Moorhead acted as honorary director.

His Excellency the Governor-General proposed: "That the National Cancer Campaign, Ireland, is worthy of the support of all the citizens of Ireland." Sir Humphry Rolleston, in seconding the resolution, said that it was most appropriate that Ireland, and especially Dublin, with its magnificent tradition of great leaders in the art of medicine—Robert Graves, William Stokes, Dominic Corrigan, John Cheyne, and others—immortal names, familiar in all lands—should continue to take an active part in the investigation of cancer. It was desirable that the investigation should be much expanded, and include research of a laboratory, clinical, and therapeutical character in addition to statistical work. It could not be too forcibly emphasized that before prevention could be put on a sound scientific basis the cause or causes of the condition must be accurately known. After dealing with many phases of the disease, Sir Humphry Rolleston said that since 1895, when Roentgen discovered x rays, the face of medicine had been changed; the discovery of radium and of the radio-active substances followed, and the employment of x rays and radium to destroy cancer had been widely used in Dublin, where Drs. W. C. Stevenson, L. Cassidy, Stumpf, and Mr. R. J. Hayes had been active in this respect. But there was need for much more information to make it clear how this beneficial effect was produced, and to show how it could be used to the best advantage. The urgent need for more research could not be overemphasized, and to enable this research to be carried

out in Dublin an institute with whole-time workers and proper equipment was indispensable. When this was fully realized the necessary funds, even in these times of distress, should surely be forthcoming to attract and keep in Ireland the keen mind and high ability that were recognized on the other side of St. George's Channel as the special product of Ireland.

Professor Cushing, in supporting the appeal for funds, said that already they were no longer on the defensive against cancer. The attack had been planned by institutions in many countries, and the study of the disease had of itself become so great a specialized subject that its pursuit, to be effective, required only the leadership of a group of men, each trained in his own special line of work, but all united in the common cause. Unless Ireland differed greatly from other countries in the incidence of cancer, and unless the population was already on the alert to recognize the early manifestations of the disease and their significance, a cancer campaign was very much needed there as in other countries. It was no less important that through the agency of some central institution Irish experts and Irish hospitals should be enrolled in the general crusade against such a formidable disease.

England and Wales.

London Police Report.

THE Report of the Commissioner of Police of the Metropolis for 1926 contains much varied information. Of medical interest is the retirement of Sir Charles Ballance as chief surgeon under the age limit, and the reorganization of the medical services by the appointment of Dr. Maurice Cassidy as chief medical officer, Dr. H. Bret Russell as deputy physician, and Mr. Max Page as consulting surgeon. The metropolitan area is kept in order by 20,000 policemen and 50 policewomen. The daily number of these on the sick list or on sick leave was 664; 2,600 policemen were injured on duty, of whom 136 were bitten by dogs. The lost property office has now been transferred from New Scotland Yard to the Lambeth Road. Vast numbers of articles pour into the office. On one occasion 696 umbrellas arrived in one day, and attaché cases maintain an average of 40 to 50 a day. Of 1,000 motor vehicles stolen, 780 were recovered; convictions for drinking methylated spirit have fallen from 142 in 1924 to 39 last year; and the only case of murder in which no arrest was made was that of the manager of a Bayswater provision shop. The Commissioner is well pleased with the roundabout system of traffic, and promises further schemes of the same kind.

Clinical Research at the London Hospital.

The Freedom Research Fund was instituted in October, 1925, by a gift of £50,000 for the promotion of research work in connexion with the clinical laboratories of the London Hospital. Research workers were elected during 1926, and the following brief account indicates the lines along which research has been carried out during the first active year of the fund. The work has been much assisted by the interest and co-operation of the honorary staff of the hospital, and in particular by the daily intercourse which takes place between the laboratory workers and the staff of the medical unit of the hospital.

During 1926-27, Dr. S. P. Bedson has been engaged on the following: A study of the viruses of herpes zoster and chicken-pox, with two main objects in view: to throw light on the nature of filterable viruses in general, and to work out the interrelationship of these three viruses, with special reference to the supposed identity of the viruses of zoster and chicken-pox. In the first of these two problems the virus of herpes has been employed and the results obtained, generally speaking, support the view that this virus is a particulate organized form of life. This work is being continued. Little advance has been made with the second and subsidiary problem owing to the failure attendant on all efforts to transmit zoster and chicken-pox to laboratory animals; it has not, however, been abandoned. In addition, the opportunity has been taken of investigating other vesicular conditions such as dermatitis herpetiformis, hydroa gravidarum, and pemphigus. Dr. Bedson has also studied the role of the spleen in purpura. This has been confined to an investigation of the normal mode of destruction of the platelet, and evidence has been adduced to show that this function is performed by the phagocytic cells of the spleen.

In addition to these lines of work, Miss S. G. Robinson has commenced a study of the antigenic properties of purified serum proteins of different animal species, the object being to find out how far the antigenic behaviour of these lipoid-free proteins parallels their physical and chemical properties. At the same time she has been investigating the antigenic relationship of several Bence-Jones proteins isolated by Dr. Hewitt from cases of myelomatosis. Her work is not yet sufficiently advanced to warrant the drawing of any conclusions.

Dr. H. W. Florey has been engaged on an investigation of the functional capacities of the lacteals of various animals. The rhythmical contractions observed in these vessels in guinea-pigs have been specially studied. In collaboration with Dr. P. Fildes, an examination has been made of the curative effects of massive intrathecal doses of antitoxin as compared with intravenous administration. The conclusion was arrived at that no advantage could be found in rabbits in the former method of giving antitoxin. With Dr. H. M. Marvin observations are being made on the control of the cerebral circulation, and the significance of the several factors involved.

Dr. L. F. Hewitt has been engaged as follows: A method has been worked out for the accurate determination of the total protein content and the amount of albumin and globulins in the cerebro-spinal fluid. A number of normal and pathological fluids were examined and characteristic alterations were found in certain conditions, especially in general paralysis of the insane. The effect of various drugs on the protein content of the cerebro-spinal fluid is being investigated with Dr. Florey. Proteins of the blood, milk, eggs, etc., have been isolated in the pure state free from lipoids, and characterized by their optical rotation and dispersion. The immunological relations of some of the proteins is receiving attention. Albumin prepared from the urine of nephritic patients has been shown to have the same optical rotation and dispersion as serum albumin; and Bence-Jones proteins from the urine of patients with myelomatosis are being investigated physico-chemically. In conjunction with Dr. J. R. Marrack the osmotic pressures of normal and nephritic serums and of isolated proteins are being measured under different conditions, in connexion with the study of the causes of oedema. The adsorption of various substances by proteins under various conditions is being studied. The occurrence of acetone bodies in the blood of diabetics is being followed (in association with Miss Brown).

The London School Medical Service.

The London County Council recently, on the motion of Dr. Stella Churchill, referred it to a committee to consider and report on the present method of appointing medical officers in the school medical service. The committee, in its report to the Council, presented on June 28th, states that the fixed staff of the school medical service consists of certain full-time and part-time permanent officers and a number of part-time medical officers employed on yearly engagements. It is the general practice of the Council to fill vacancies on the permanent medical staff either through public advertisement or by promotion from the lower graded permanent officers, but exceptions to this practice have been made in the case of specialists engaged as consulting officers at remuneration based on part-time advisory services. As regards the medical staff employed on part-time yearly engagements, the Council decided three years ago that the then existing full-time positions on yearly engagements should be converted into an equivalent of part-time positions carrying duty to the extent of three half-days a week. The fixed staff of the department now provides for sixty-six positions of this kind, any two of which can be amalgamated into one position with duty of six half-days a week. In addition to the fixed staff a temporary medical staff is engaged, and paid on a part-time sessional (that is, half-day) basis. It is also pointed out that the work of the school doctor is rather specialized, and it has been found desirable that appointments to the yearly engagement positions should be preceded by experience of the work on the more temporary basis of sessional engagement. Under this method the Council has recruited a highly efficient school medical staff, but it is proposed, in order to bring the appointments in the school medical service more prominently to the notice of medical men and women generally, to issue annually in January a public advertisement inviting applications for inclusion in a panel from which vacancies for temporary medical assistants employed on a sessional basis can be filled. A fresh panel will be formed each year. Vacancies in the yearly engagement staff will continue to be filled by selection from the sessional staff in the light of experience of individual capacity. Each of the officers holding a yearly engagement comes under review at the annual reconsideration of appointments in that grade.

Correspondence.

MINERS' NYSTAGMUS.

SIR,—The BRITISH MEDICAL JOURNAL for June 18th (p. 1092) contains a contribution by Dr. Freeland Fergus in which he criticizes the report to the Medical Research Council on miners' nystagmus, and a paper read by us before the Scottish Mining Institute, in the course of which we defend that report. A summary of this paper appeared in the BRITISH MEDICAL JOURNAL of April 30th (p. 809) and a full report of the paper and ensuing discussion, including our reply to the remarks of Dr. Freeland Fergus, has now appeared in the *Transactions* of the Institution of Mining Engineers.

The committee concluded quite unanimously that the essential cause of miners' nystagmus is defective lighting. We need not repeat here the evidence, which seems overwhelming, in support of this conclusion. All that we can do is to endeavour to clear up a misunderstanding which seems to have misled Dr. Freeland Fergus and others. This is that the electric hand lamps at present in common use give a good illumination. In actual fact this illumination is extremely defective, and not much better than that of the older forms of oil safety lamps. The better existing oil safety lamps give more light than the ordinary electric safety lamps; and at the meeting there were shown new forms of oil safety lamps giving from four to twelve times as much light as ordinary electric hand lamps. These improved oil safety lamps are the result of the recent investigations undertaken for the Safety in Mines Board by Professor Wheeler and Mr. D. W. Woodhead.

At the time when the nystagmus committee reported the best available safety lamp seemed to be the electric cap lamp, on account of its being much closer to the surface which has to be illuminated. The letter from Professor Collis in your issue of June 25th (p. 1164) shows how successfully these lamps are used in American coal mines, where the conditions make their use quite easy in nearly all cases. Electric cap lamps are at present used universally in American coal mines in which safety lamps are needed, and miners' nystagmus is unknown in these mines, as was pointed out in the report. But where hand electric lamps are used the light is too far away to give satisfactory illumination, and nystagmus is common. The list of cases quoted by Dr. Freeland Fergus serves only to illustrate this fact, and in reality supports strongly the conclusions of the committee, which are based, not on vague suppositions, but on definite photometric measurements. Dr. Fergus and others ask for a new medical committee on miners' nystagmus. We venture to think that if the report of the late committee is read carefully it will be seen that the proposed new committee is not needed. What requires to be done now is to reform radically the illumination in coal mines; and it was with this end in view that we read our paper before the Institution of Mining Engineers, and drew prominent attention to the greatly improved oil hand lamps now becoming available.—We are, etc.,

J. S. HALDANE,
T. LISTER LLEWELLYN.

Oxford and Nottingham, June 27th.

SIR,—Miners' nystagmus, like any other disease, mental or physical, is the result of the reaction of an individual to his environment.

In searching for the cause of a disease which appears in a special environment the investigator endeavours to ascertain a factor or factors common to all varieties of that special environment. He then concludes that this common factor, or the sum of these common factors, causes the disease in the type of individual who suffers from the disease. When the investigator has formed his theory he must be prepared to apply it to each case of the disease which occurs. If a definite observation of fact is made by a competent observer he must be prepared to explain that observation by means of his theory, and must not ignore that observation of fact.

It appears to me that the consideration of a special environment which in seventy to eighty years has produced one case only of miners' nystagmus suggests a possibility of its cause.

The pit in question was, from its inception until September 5th, 1908, a safe pit worked by naked lights. On that date one man was burned by gas igniting and died. The best type of oil safety lamp was almost immediately installed. In February, 1913, a collier employed in this pit consulted me, and I found him to be suffering from very well marked nystagmus. The safety lamp system was retained until December, 1916, when naked lights were again used, and still are. No other case of nystagmus has occurred, either before or since, in that particular pit.

Leaving for a moment the type of individual affected, let us consider what alterations occurred in his special environment after the fatal gas ignition of September, 1908. The first and most obvious is the change from naked light to safety lamp, and at the time I regarded it as striking proof of the insufficient illumination theory.

It may be argued by those who uphold the chemical toxic theory that obviously the atmosphere of the pit had undergone a change, as shown by the presence of gas and the necessity for safety lamps. This is not so. The deputies' tests in this pit had never shown the presence of gas in the active workings. The ignition was that of a small pocket of gas in a disused barred-off working where the man had no right to go. No different seam was opened or worked from the one which had always been mined.

Now what other difference in environment was there? I suggest the only other difference was a psychological one; the suggestion that a hitherto safe pit was now a fiery one.

So I put forward as a working hypothesis the theory that miners' nystagmus is due to mental conflict in an individual who fears or dislikes his occupation and is unwilling to adopt any course which he may have been able to think of in order to get out of it. His reasons may arise from self-respect, pride, or necessity to make his and his family's living. It is a point of honour among coal-miners not to admit any fear of their occupation; and this particular individual pooh-poohs it; yet only recently he has asked to work above ground because, he said, after an accident to his eye, that he thought he was "unlucky" below ground.

Have we other evidence that necessitous continuation in a feared and disliked occupation causes a mental conflict with disastrous effects upon the nervous system? The numerous cases which occurred during the war, and used to be called "shell shock," supply an affirmative answer. When we consider the industrial unrest, the economic difficulties of the miners as a whole, the insistence upon the dangers and difficulties of the miner's job, supported by spoken and printed statistics supplied before and during the prolonged stoppage last year, and the fact that the occurrence of nystagmus enables a man to escape from underground work, retaining his own and his mates' respect, together with a small but assured income, can we wonder that nystagmus is increasing?

I submit that this hypothesis is worthy of investigation by competent observers, because it covers all the circumstances in which miners' nystagmus occurs and explains all its symptoms, including vasomotor disturbance and disorderly action of the heart.

In addition, I suggest that in a different type of individual it may account for the increase of beat-knee mentioned by Dr. Frederick Robson of Cardiff in his article printed in the BRITISH MEDICAL JOURNAL of June 18th (p. 1094). During the war I saw many men evacuated from the front line in Palestine with a form of synovitis of the knee, usually the right, for which I could find no cause. I was told by a private soldier that the men called it "sign o' Blighty" knee, and it could be produced by persistent gentle beating of the flexed knee by the ulnar surface of the clenched fist. I give this for what it is worth, but it occurs to me that an unscrupulous individual could escape from his disliked occupation and also receive a small steady income by artificially producing a beat-knee—that is, that beat-knee in some cases may be a "self-inflicted wound."—I am, etc.,

Thurlstone, near Sheffield, June 21st. GORDON WILSON.

THE DISTRIBUTION OF LEAD COLLOIDS.

SIR,—We now consider it wise to remove all the existing restrictions in regard to the distribution of "choriotrope"—that is, of preparations of lead, which have been under our control, for use in the treatment of cancer. So many variations are now being made on the Continent and in this country—some of which appear to be useful—that we have no longer the power or the right to check the employment, in skilled hands, of lead in the treatment of malignant disease.

We hope and believe that the medical profession is now fully alive to the dangers that may be associated with the casual administration of this material, and that it will be used only by those who can carry out the treatment safeguarded by laboratory tests.

At the same time it will be recognized that any preparation that may be placed on the market, including material issued under the special name of "choriotrope" which we have allowed British Colloids Limited (Crookes' Laboratories) to register, will no longer be under our control.

In conclusion, I should like to express my appreciation of the courtesy and co-operation of British Colloids Limited during a difficult time; they have always been ready to sacrifice commercial gains in the interests of research and the public weal.—I am, etc.,

W. BLAIR BELL,
June 24th. Director, Liverpool Medical Research Organization.

DRUGS FOR SLEEPLESSNESS.

SIR,—In his letter in the BRITISH MEDICAL JOURNAL of June 25th (p. 1163) Sir William Willcox seems more anxious to score points in debate than to arrive at truth. For example, he altogether ignores the serious fact that when he quoted the late Sir Frederick Mott's experiments he overlooked the question of dosage. The point was so emphasized, both by Sir Maurice Craig and Dr. Gillespie, that it must be dealt with, if we who are watching the debate are to take Sir William seriously. It is surely his duty now either to admit his error or to show that dosage is of no importance.

Again, when he says that he is astonished that Sir Maurice Craig considers sulphonal and trional more toxic than the barbitone group, and when he goes on to say that weight for weight this is not so, surely he must have known that the point of importance is that the toxic dose of sulphonal and trional is much nearer the therapeutic dose than it is as regards the barbitone group. Surely, also, it is obviously irrelevant to point out that there are more deaths from barbitone, unless we know also which is the more fashionable hypnotic.

I myself have often been a little uneasy when prescribing medinal for long periods. Sir William Willcox has done much to convince me that my fears were groundless.—I am, etc.,

Penshurst, Kent, June 27th. T. A. ROSS.

SIR,—Sir William Willcox apparently accepts that the research work he quoted, in which large and poisonous doses were given to cats and monkeys, has no bearing on the effect of therapeutic doses of the barbitone group on man.

He once more refers to the fact that on an average ten persons a year destroy themselves by taking a poisonous dose of veronal, but I cannot regard this as affecting the value of the barbitone group in the treatment of sleeplessness.

Sir William Willcox says that he is astonished that I regard sulphonal as more toxic than the barbitone group, and quotes the dosage as officially given. I can only regret that he regards my intelligence as being of so low a standard. Of course, single doses of the barbitone group are infinitely more potent than the sulphonal group, and I can assure him that I recognize this by prescribing larger doses of sulphonal than I do of the former. But this was not the question raised by Sir William Willcox; it was the cumulative effect that he feared, and that he warned, and continues to warn, medical men against, and it was as touching his views on this point that I ventured to give my experience. It is the cumulative effect of sulphonal that I regard as more toxic than that of the barbitone group, and I was under the impression that this was recognized by most persons who have had the experience of using both of these drugs in their medical practice.

I regret that it should be necessary for the third time to repeat that the opinion that I have expressed is based on observation extending over many years of a large number of normal persons who were suffering from defective sleep from one cause or another; therefore there is no discrepancy between our respective experiences so far as the class of patient is concerned. Sir William Willcox says that he is fully aware that persons suffering from active mental disease can often tolerate larger doses than normal persons. This is not my experience, neither can I understand why it should be the case, as the power of elimination is frequently reduced in these patients.—I am, etc.,

London, N.W.1, June 25th. MAURICE CRAIG.

SIR,—An extensive experience of barbitone-compound medication in private practice has led me to the conclusion that in medinal and veronal we have two of the most useful hypnotics for routine use in cases of moderate mental excitement; nevertheless, I regard them as dangerous drugs, for I have seen many instances of mental disturbance from their habitual use, and am aware of cases of definite addiction. Also I have had patients whose lives have been lost through taking these preparations. Moreover, I have frequently observed that the administration of 10 grains of medinal for more than five or six nights in succession has produced mental confusion, giddiness, and muscular weakness. Similar symptoms, sometimes with diplopia in addition, will on occasion follow a restful night resulting from a dose of not more than 10 grains. Particularly have I noticed these effects when veronal or medinal have been given for the first time to patients over 65 years of age. My rule, therefore, is not to give a prescription for more than three cachets or tablets at a time, with instructions that after the first three or four doses the drug is to be taken on alternate nights only, and always under adequate medical supervision. Further, I now rarely prescribe medinal or veronal for patients over 65 years of age.

Sir William Willcox's warning (June 25th, p. 1163) is most timely. I thoroughly agree with him that the barbitone group of drugs are so dangerous that we should all exercise very great care and caution in prescribing them. I find that medinal and veronal are to-day being widely purchased by "nervous" patients, who are quite unaware of the risks they incur both to life and brain through their habitual use. Consequently, apart from any ethical considerations, my own view, based on clinical experience, is that the time has come when the prescription and sale of veronal, medinal, luminal, and the rest of the barbitone series should be much more closely controlled in the public interest.—I am, etc.,

London, W.1, June 27th. E. L. HOPEWELL-ASH, M.D.

SIR,—While not possessing the large experience of either Sir Maurice Craig or Sir William Willcox, I am at one with Sir Maurice as to the very serious results of prolonged insomnia, and with Sir William as to the effects of veronal. So impressed am I with the insidiousness of the latter (most useful drug as it is) that I have long ceased to order it under that name, and then only for a very limited number of doses. It is, in my opinion, much more toxic than either sulphonal or trional, and what has, perhaps, struck me most has been the very rapid declension in moral and will-power experienced by its victims.—I am, etc.,

Bexley, Kent, June 25th. R. LYNN HEARD.

NORMAL CHOLECYSTOGRAPHY.

SIR,—Dr. Francis Davies's article on normal cholecystography (June 25th, p. 1138) is both interesting and valuable. Its value as setting up normal standards would be further enhanced if, when published by the Medical Research Council, each of the hundred cases be set out in detail.

This would permit independent judgement to be formed on such questions as "overlap" of one type with another, as it is, ultimately and in practice, the individual that is important, and not the average.

Further technical details regarding films, screens, developer, etc., would be useful; and, finally, the number of hours taken in each case before the shadows of the gall bladder could no longer be seen.

I assume that a careful medical examination was made on the lines of that carried out for pilots, for each of the hundred students, and any exhibiting pathological conditions, excluded.—I am, etc.,

London, W.1, June 25th. C. B. HEALD.

THE APPENDIX REFLEX AND THE HYPOGLYCAEMIC CHILD.

SIR,—I read Mr. A. B. Mitchell's paper in your issue of May 28th (p. 958) with considerable interest, as he deals with the surgical aspect of a common metabolic disturbance of childhood that I have attempted to investigate, by making a simple routine examination for acetone bodies in the urine of all children coming under treatment for any cause whatever. Two of Mr. Mitchell's cases (Nos. IV and V—cyclical vomiting: acidosis) confirm an observation made at the end of a short paper in *St. Bartholomew's Hospital Journal* of March, 1924, which I concluded with the following statement: "There may be a definite relationship between acidosis and appendicitis, or it may be only a coincidence that several of my little patients, who were known to me to have suffered from acidosis for several years, have recently developed acute appendices." Earlier in the same paper the observation is made that a routine examination for acetone in the urine of all children coming under notice reveals the fact that acetone was found in about 50 per cent. where at first sight it would not have been suspected, the children in question being brought to me because they were bad-tempered, fretful, did not gain weight, or were simply out of sorts; several had disordered action of the heart.

This study, based on acetonuria, gives a broader view of the disturbance of metabolism from which all these children suffer, an outlook to which I would now wish to draw special attention. This outlook, together with the very important factor of hypoglycaemia, affords a comprehensive study that may not have occurred to Mr. Mitchell, and was certainly not mentioned in an excellent and instructive paper on gastric attacks in childhood by Dr. Donald Paterson in your issue of May 14th.

Since writing in 1924, thanks to the work and teaching of Dr. P. J. Cammidge, I know now that in all these children an abnormally low sugar content is the rule, and, further, that this hypoglycaemia is a fairly constant factor.

After appendicectomy in these cases, if hypoglycaemia persists, a nervous child will still suffer from attacks of acetonuria and will not be cured of its concomitants, such as cyclical vomiting, disordered action of the heart, febrile attacks, train or car sickness, etc., and these obvious untoward manifestations of the condition will still follow indiscretions of diet and excitement or fatigue. I had one such case in mind when writing in 1924. A nervous little girl, aged 5, had been under observation for twelve months for febrile attacks associated with acetonuria, but presented neither vomiting, tonsillitis, nor abdominal symptoms; acute appendicitis came on suddenly, and the late Mr. Adams removed a gangrenous appendix, and subsequently an abscess in the iliac fossa. From a surgical point of view the case was cured, but acetonuria reappeared with the least dietetic indiscretion, such as eating chocolates; also car sickness became troublesome. Fortunately the latter was easily controlled and prevented (as, indeed, most cases of car and train sickness can be controlled) by a course of alkalis and a few feeds of glucose, which automatically clear up the acetone in the urine.

A routine examination of blood sugar for hypoglycaemia should prove a profitable field for research in these cases, especially in hospital practice, where facilities are available for this procedure. As a general country practitioner I find considerable opposition on the part of parents to repeated blood examinations of their offspring, and laboratory facilities are not available.

A final practical word about sweets. Chocolates seem to upset the metabolism of these hypoglycaemic children, and precipitate an attack of acetonuria. I therefore order chocolate in all forms to be eliminated from the dietary; as a compensation I allow a short stick of barley sugar night and morning. This is an attempt to correct a deficiency of blood sugar, is pleasant to administer, and is certainly popular among my little hypoglycaemic patients.—I am, etc.,

MARMADUKE FAWKES, O.B.E.,
Midhurst, Sussex, June 9th. M.B., B.S.Lond.

INTRAVENOUS THERAPY.

SIR,—In regard to the technique of intravenous injections, embodied in Dr. Harold Pritchard's address (April 30th, p. 792), may I be permitted to add that a great deal of the difficulty experienced can be avoided by using a 3 c.cm. two-piece all-glass syringe, fitted with a 2 cm. dental needle. When seated in a chair, as is usual in the treatment of bilharzia patients, the rolled up shirt-sleeve can best be manipulated by the patient himself, who holds it tight till the blood is seen to enter the syringe; this takes place most readily when the patient is firmly gripping some hard rounded body, such as a running-cork, in his clenched fist. The local application of rectified spirit renders the point of insertion of the needle partly anaesthetic and sterile, and, when the injection is completed, helps to arrest any flow of blood, thus dispensing with any local dressing for so small a needle-prick. The ordinary tartar emetic powder, obtained from local chemists, should never be employed for intravenous injections.—I am, etc.,

Durban, May 30th. F. G. CAWSTON, M.D.

SIR,—In your issue of April 30th (p. 792) Dr. Harold Pritchard discussed the good and bad points of "intravenous therapy," but did not mention the use of quinine bihydrochloride by this route.

Working in a malarial place, I find this drug, when administered intravenously, very efficacious in acute and chronic malaria, and also in cases in which malaria complicates other diseases. I have used the drug by the intravenous route in pneumonia and septicaemia, too, in a few cases, and always with success.

The injection should be given very slowly, so that the quinine is equally distributed throughout the blood, and a light-piston all-glass syringe should be used. The blood pressure in the vein is sufficiently high to push a light piston (hollow glass), and as soon as the needle enters the lumen of the vein blood is seen in the syringe. This saves the trouble of pulling the piston to see if the needle is in the vein.

I have given intravenous injections of quinine to patients of ages from 12 to 65 years without any ill effects. I have found the drug of very great use in removing the after-effects of malaria. In two patients, suffering from perineuritis of the sciatic nerve after continued attacks of malaria for a period of one to two months, the results obtained were most satisfactory. Before treatment by this method (although he had exhausted all other methods) one of them could not turn on the affected side, but after four injections and massage for a fortnight he regained the full use of his limb.—I am, etc.,

Kurali, Punjab, May 24th. BHAJWAN RATTAN, M.B., B.S.

SODIUM SILICATE TREATMENT OF DOMESTIC WATER.

SIR,—In the JOURNAL of May 28th (p. 990) there appear, among the Parliamentary Notes, answers by Sir Kingsley Wood to questions put by Mr. Morris to the Minister of Health relating to the addition of sodium silicate to domestic waters. The questions were plainly put, but the answers were not satisfactory, and were calculated to support a process which sooner or later might endanger the health and lives of those who were users of water to which silicate of soda had been added. Sir Kingsley Wood admitted knowledge of the silicate process, and that it had

been "adopted in a few districts mainly on an experimental scale," but said that

"the quantity of silicate of soda used was so small that the proportion in the treated water was much less than that contained in many natural waters used for domestic supplies. The results of the treatment were being carefully watched, and upon the information so far available there appeared to be no reason to apprehend any danger to health or any diminution in the wholesomeness of the water."

Sir Kingsley Wood evidently treats the addition of silicate of soda to over 20 million gallons of water supplied daily to a town of 800,000 inhabitants as being on "an experimental scale." Surely to subject 800,000 persons to "an experiment" is rather risky, especially when the chemicals used are known to be toxic under certain conditions. My reference is to a town where the so-called experiment has been in operation for some time; the watchmen, whoever they may be, have not yet, it seems, supplied the Ministry with reliable information, so that the effect of the silicate on water, or *vice versa* of the water on the silicate, is still *sub judice*. Not only large but small towns are subjected to what Sir Kingsley Wood chooses to call "an experiment on a small scale." I know of a small town of 10,000 inhabitants where a plant has recently been put up to silicate the whole of its water supply, and another, of under 4,000 population, is being urged to follow suit. To say the least, it is rather a novel method of experimenting, and looks more like the act of one who has no compunction with regard to the wholesale conversion of some of the purest waters in the kingdom into chemical solutions.

Sir Kingsley Wood attempts to justify the silicate process by comparing it with the quantity of silicate in some natural waters; unfortunately for his contention, there is no analogy, because when a silicate of soda is added to a pure, soft, acid water a part of the silica is converted into a colloidal silica, which is a definite poison, and when absorbed into the system has a tendency to disturb the functions of the kidneys. When the water supply of a town is silicated there is no escape from its poisonous properties; the adult and infant are equally subjected to the constant action of a toxic chemical. Sir Kingsley Wood expressed his willingness to receive any information which Mr. Morris could furnish. But surely the Minister could get all he required from some toxicologist of repute, such as Sir William Willcox (Medical Adviser to the Home Office), whose name Mr. Morris incidentally mentioned in the House of Commons. The question is of vital importance, the purity of domestic water being as essential to health as that of air and milk, which together constitute a "trinity of health," and without which we cannot hope for a Class A nation. I do not believe that a toxicologist of repute could be found who would approve of the addition of silicate of soda to pure, soft, acid, domestic water supplies with the object of eliminating their plumbosolvent action, which could easily be done by cheap and harmless methods; therefore, until positive evidence is produced that water to which the silicate of soda has been added can be drunk with impunity, the Ministry of Health should prohibit its use, and in the meantime consider other methods which, while being effective, would not interfere with the domestic and therapeutic value of our soft waters.—I am, etc.,

T. D. HARRIES, F.R.C.S.Eng.,
M.R.C.P.Lond.

Aberystwyth, June 19th.

ANTIVIVISECTION MEETINGS.

SIR,—With reference to your article on the above, may I suggest that your wholesale condemnation of antivivisectionists is perhaps a little sweeping? Some of these persons are animated by sounder motives than hysterical sentiment, and I believe the cause of scientific research would benefit if its supporters—in contradistinction to their opponents—were always entirely honest in the statements they put before the public.

To take a case in point, it has been recently published that, if stray dogs were used for research, they would simply meet with an improved euthanasia, whereas, of course, many experiments on dogs entail their recovery from the anaesthetic for further observation.

Some experiments must entail suffering. This fact is either denied or deliberately avoided in statements published in the lay press.

Even supporters of research must admit that the conditions obtaining in all the physiological laboratories of Europe are not above criticism. It has recently been suggested that research on the Continent is more favoured than in England, and that it is a pity that similar facilities are not available here, but those who know the conditions in certain Continental schools also know that totally unnecessary pain is frequently caused in their use of experimental animals.—I am, etc.,

HAROLD PARSONS, M.B.Camb.

Bridgwater, June 28th.

Obituary.

RICHARD HENRY KENNAN, B.A., M.D.DUB., F.R.C.S.I., D.P.H., D.T.M.,

Medical Adviser to the Colonial Office; late Senior Sanitary Officer, West African Medical Staff.

ON June 20th Dr. R. H. Kennan died at Liverpool from pneumonia, at the age of 59. As a student he had a very distinguished career at Trinity College, Dublin, obtaining most of the prizes and distinctions in his year. He ended his surgical career by taking the surgical travelling prize, which enabled him to continue his studies in Vienna.

On his return from abroad he held the post of resident physician at Birmingham Infirmary for a couple of years, and afterwards a similar post at Parkhill Fever Hospital. He then returned to Dublin, where he was appointed assistant surgeon to Sir Patrick Dun's Hospital. He practised for a few years in Dublin, and at the same time conducted the surgical side of the most popular "grind" class of the day. Although a very promising career awaited him in Dublin, where his surgical ability and his attractive personality were recognized and esteemed, private practice did not attract him, and he followed a natural bent for travel and accepted an appointment under the Colonial Office on the West Coast of Africa. There he served with great distinction until 1916, when he had attained the rank of senior sanitary officer. In that year he was retired from the Colonial Service by reason of serious illness, which left him partially incapacitated. On his return to this country and after a tedious convalescence he was appointed as Colonial Office adviser in Liverpool in succession to Sir William Prout, an appointment which he held until his death. Of recent years he did valuable work as lecturer and examiner in tropical hygiene in the Liverpool School of Tropical Medicine.

Dr. Kennan's delightful personality won the admiration and affection of a large circle of friends. An old colleague of his in Dublin, in a letter to the writer of this notice, referred to him as "the cheery, humorous, clever, well informed straight gentleman that it does one good to know but is seldom met with. Many men better known will be less missed."

Medico-Legal.

ALLEGATION OF NEGLIGENCE AT A DENTAL HOSPITAL.

A RECENT action, heard in the King's Bench Division before Mr. Justice McCardie and a special jury, though primarily of importance to the dental profession, has also features of medical interest.

The plaintiff, a widow living in Clapham, claimed damages from Mr. G. Miron, a registered dentist and formerly house-surgeon at the National Dental Hospital, Great Portland Street, and Dr. A. J. Chiappa Sinclair, medical superintendent of the hospital, for the loss of her daughter, Edith Cooper, whose death, she alleged, was due to their negligence in the extraction of a tooth. The charge was denied by both defendants.

The plaintiff's case, as opened by Mr. A. T. Denning, was that her daughter, aged 30, went to the hospital on May 22nd, 1925, to have three teeth extracted. During the operation, which was performed under nitrous oxide gas by a student, the crown of one molar was broken off and disappeared down her throat. When she recovered from the anaesthetic she complained to her sister of difficulty in breathing, but she was allowed to go home and nothing was said to her by anyone at the hospital about the missing piece of tooth, and no arrangements were made for further examination or treatment at the hospital. The evidence

of medical men who subsequently attended Miss Cooper indicated that septic pneumonia followed, due to impaction of the piece of tooth in a bronchus, death occurring on August 27th. Counsel submitted that had an operation been performed within a few days of the extraction the patient's life might have been saved. It was negligence on the part of both the defendants, he argued, to allow a student to extract the tooth and not to tell the patient's friends what had happened. While Mr. Miron admitted he was on duty in the operating room during the extraction, and said Dr. Sinclair was there also, Dr. Sinclair denied that he was present at the actual operation, though he had examined Miss Cooper's mouth beforehand and filled in her treatment card.

Mr. F. W. Wallace, in opening the defence on behalf of Mr. Miron, asked the jury to bear in mind that his client was present on May 22nd, 1925, as a dentist, and did not profess to be a doctor. The rule of the hospital was that no extraction under gas should take place except in the presence of a fully qualified medical practitioner. Unfortunately there was a direct conflict of evidence as to whether Dr. Sinclair was present on this occasion. Counsel's submission was that Dr. Sinclair was present and that it was no part of Mr. Miron's duty to make any formal report or to mention to Dr. Sinclair a fact which Dr. Sinclair himself must have observed.

Dr. James Maughan, anaesthetist to the National Dental Hospital (now the Dental Department of University College Hospital), gave evidence. While he was in attendance at the hospital on the morning in question no suggestion arose that any patient had swallowed a tooth. When he left at 11.20 a.m. he told the porter to ask Dr. Sinclair to take his place at once in the anaesthetic room. It appeared from the hospital records, however, that Miss Cooper's case had been dealt with before he left.

Mr. E. Davy, the third-year student who undertook the extraction, and a nurse who was present in the gas room, both gave evidence. They agreed that a medical man was in the room supervising the administration of the anaesthetic, but neither could say whether this was Dr. Sinclair or Dr. Maughan. Mr. Davy said that when he broke the crown of the tooth and could not find it he told Mr. Miron, who put his finger inside the patient's mouth and tried to find the broken piece, but failed. The operation was immediately stopped because of the accident. He entered in the case-book "crown swallowed," but why Miss Cooper was not told this nor asked to return to the hospital he did not know.

Mr. Miron's evidence-in-chief bore out that of the previous witness, except in regard to the presence of Dr. Sinclair at the extraction. He said that on the morning of the inquest he reminded Dr. Sinclair that he had been present, but Dr. Sinclair denied this, and Mr. Miron did not argue the point. Had Dr. Sinclair not been present he would have reported the accident to him; it was the duty of the medical superintendent to tell the patient what had happened. Mr. Miron was cross-examined by Mr. Pereira on behalf of Dr. Sinclair, and by Mr. Denning for the plaintiff. A good deal of this cross-examination turned on the relative responsibility of the witness as house-surgeon, and of Dr. Sinclair as medical superintendent. He was questioned also by Mr. Justice McCardie at some length in regard to what steps should be taken when it is suspected that a tooth or part of a tooth has entered the air passage or been swallowed.

Mr. Pereira, for Dr. Chiappa Sinclair, said that his client's defence was that he was not present at the operation, and that the first he heard of anything unusual about the case was when he got a telephone message from St. James's Hospital, Balham, informing him of Miss Cooper's death.

Dr. Sinclair gave evidence bearing out his counsel's statement. His duty at the hospital, he said, was to supervise generally the work of its departments, but not to interfere with a dentist unless he was doing something radically wrong. He had seen the marked chart with his initials on it referring to Miss Cooper's case, and there was nothing there to suggest anything unusual about it; otherwise he would have marked the chart "H.S." meaning that the operation was to be done by the house-surgeon, or "M.S." (to be done by himself). Such an accident as the swallowing of a tooth had never happened in his presence in the gas room. Had he been there he would have looked upon it as a very serious matter calling for immediate action. In cross-examination Dr. Sinclair agreed that if he had been present when this accident occurred it would have been his duty to take the necessary steps—to make a thorough search of the mouth and throat, and if the missing piece could not be found, to inform the patient or her friends, with a view to having an *x*-ray examination.

Dr. A. B. G. Underwood, sub-dean of the National Dental Hospital, in giving evidence expressed the opinion that the patient or her relatives should have been informed about the missing piece of tooth. He said that he always gave definite and detailed instructions as to the steps that should be taken if a tooth disappeared, and in reply to his lordship he outlined what he told the students to do, and why. The accident, in his opinion, should have been reported to Dr. Sinclair unless he was actually present at the operation.

Mr. Justice McCardie, in the course of his summing up, said that one of the issues for the jury was whether Miss Cooper's life might have been saved if proper steps had been taken in time. If it might, the question arose whether the plaintiff's loss of her daughter was due to the negligence of one or both of the defendants. There seemed to be no doubt as to what was the duty of a dentist when an accident of this kind happened. Here everyone in the operating room knew that the tooth had gone down the patient's throat; but when she left the hospital she had no idea of what had happened and nothing was said to her sister, who was with her, about it. The jury must consider the cases of Mr. Miron and of Dr. Sinclair separately—whether either of them was guilty of negligence in not informing Miss Cooper or her friends what had taken place, and in not taking steps to ascertain where the broken piece of tooth actually was.

The jury after forty minutes' absence found that negligence had been proved against the defendant Miron, and that Miss Cooper's death resulted therefrom. They added that they considered from the evidence before them that the general committee of the hospital was deserving of severe censure, because, in their view, if there had been a tighter hold on the management the case against Mr. Miron would not have been so severe. They assessed the damages at £150.

Mr. Denning asked for judgement for the plaintiff against Mr. Miron and such costs as were allowed, this being a poor person's case brought under Lord Campbell's Act. Mr. Pereira asked for judgement for Dr. Sinclair against the plaintiff. His lordship said he would not enter judgement, pending any application that might be made by counsel on either side.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following candidates have been approved at the examination indicated:

M.CHIR.—R. S. Corbett, F. W. Roques.

M.B., B.CHIR.—*Part I, Surgery, Midwifery and Gynaecology*: G. M. Addison, A. F. Alson, R. Anderson, G. H. Barendt, W. J. H. M. Beattie, H. Bell, S. A. Belshaw, P. G. Bentlif, G. J. O. Bridgeman, W. A. Briggs, C. F. Brockington, A. C. Brown, H. B. Bullen, H. J. Burrows, R. W. Butler, C. P. Campion, A. B. Connell, E. C. Cosgrove, G. A. Eason, E. G. Frewer, R. Gallimore, H. Girling, E. W. Hayward, J. S. Hensman, W. G. S. Hopkirk, E. T. James, M. E. Lampard, L. C. Lancaster, A. H. Lankester, E. W. Lindeck, W. N. Maclay, F. J. Milward, J. K. Moore, J. L. Newman, T. StM. Norris, M. D. Nosworthy, D. E. Oakley, C. D. Politeyan, J. C. C. Poole, E. J. Pyle Smith, J. H. Richmond, E. E. F. Rose, P. G. Salt, M. R. Sinclair, T. C. Stevenson, G. R. S. Stewart, C. L. Stote, J. R. H. Towers, C. G. Townsend, C. F. Watts, J. R. S. Webb, W. J. Wilkin, D. B. Wilson, E. C. Wynne-Edwards. *Women*: F. M. Allen, A. R. Glover, M. G. P. Reed, E. Whidborne. *Part II, Principles and Practice of Physic, Pathology and Pharmacology*: C. Adamson, E. S. Polton, P. R. Buckton, R. C. L'E. Burges, H. J. Burrows, R. W. Butler, R. D. Curran, C. E. Donaldson, T. D. W. Fryer, H. K. Goadby, F. Goldby, A. C. Hampson, V. C. J. Harris, J. A. Hartley, A. S. Hollins, W. G. S. Hopkirk, F. S. Hubbersty, C. E. Kellett, F. Kellett, F. H. King, A. H. Lankester, T. F. McNair Scott, A. W. C. Motley, W. J. Montague, M. F. Nicholls, E. A. Nicoll, G. F. Oakden, C. L. Owen, R. Pearce, R. A. Phillips, W. P. Purvis, O. N. Rocyn-Jones, H. J. A. Simmons, L. A. P. Slinger, H. Smith, G. M. Tanner, C. I. Tuckett, C. W. Walker, R. Watson, C. F. Watt, R. W. Windle, C. E. Woolrow. *Women*: G. M. B. Morgan, K. A. Muir, C. J. Ormerod.

UNIVERSITY OF LONDON.

AT a meeting of the Senate held on June 22nd Sir William Beveridge, K.C.B., M.A., LL.D., was re-elected Vice-Chancellor for 1927–28.

Chair of Dietetics.

It was resolved to institute a University Chair of Dietetics, and to convey the grateful thanks of the Senate to the anonymous donor and to Messrs. Wander, Ltd., for their generous donations of £10,000 each towards the establishment of this Chair.

Diploma in Bacteriology.

It was resolved to institute an academic Diploma in Bacteriology, and regulations were approved.

Appointments.

The London County Council has appointed Sir Oscar E. Warburg as its representative on the Senate, in succession to Sir William Collins, M.D., retired, the appointment being made pending the coming into force of the new statutes under the University of London Act, 1926.

The title of Emeritus Professor of Anatomy in the University was conferred on Professor Edward Barclay-Smith, M.D., as from the end of the session 1926–27, when he retires from the University Chair of Anatomy tenable at King's College.

Dr. E. Graham Little, M.P., was appointed a Governor of the Chelsea Physic Garden, and Dr. J. Fawcett representative of the University at the annual conference of the National Association for the Prevention of Tuberculosis.

The University Studentship in Physiology for 1927–28, value £50, has been awarded to Mr. H. B. A. R. Dunsham.

The Bloomsbury Site.

The purchase of the Bloomsbury site by the University of London from the Duke of Bedford was completed on June 24th. The site, including roads, comprises about 11½ acres, bounded by Montague Place, Malet Street, Gordon Square, Woburn Square, Upper Montague Street, and Russell Square, and is the site originally bought by the Government for the University and sold back to the Duke in April of last year. The purchase price is £525,000. Of this sum £400,000 has been provided by the donation from the Rockefeller Foundation, and £125,000 is derived from a special Government grant in respect of improved accommodation for the University.

Sports Ground and Boat-house for University College.

The scheme for a central sports ground and a boat-house for the University of London, started by a committee appointed by the Senate some three years ago, has now taken definite shape.

At a luncheon given by the Lord Mayor at the Mansion House on June 20th it was resolved to make a public appeal. After speeches had been made by the Lord Mayor, the Vice-Chancellor, the Earl of Birkenhead, Lord Desborough, Mr. Reginald M'Kenna, Mr. Beaumont Pease, and Sir H. Waring, a resolution approving the scheme and pledging assistance to it was passed unanimously.

For the sports ground 28 acres of grassland at Motspur Park, near New Malden, have already been acquired; and for the boat-house 2 acres at Chiswick. Taking into account the purchase price, together with the cost of initial outlay and the provision of an endowment fund to meet part of the annual running expenses, the total sum required is £74,000. Towards this £14,300 has already been privately subscribed; £12,500 of that amount has been provided within the University. Cheques should be made payable to the University of London Athletic Appeal Fund Account, and forwarded to the Financial Officer, University of London, South Kensington, S.W.7, who will gladly furnish any further information on the subject.

UNIVERSITY OF GLASGOW.

A GRADUATION ceremony took place in the Bute Hall at the University on June 22nd, under the presidency of Principal Sir Donald MacAlister, when the following degrees were conferred:

HON. LL.D.—Sir Charles A. Ballance, K.C.M.G., Professor Murdoch Cameron, Professor Harvey W. Cushing.
M.D.—*P. L. M'Kinlay, *Mary M. Stevenson, †Mary S. Smith, W. Simpson, W. M'William.
PH.D.—John Donald, M.D.

* With honours. † With commendation.

The honorary graduates were subsequently entertained at lunch by the University in the Hunter Hall.

UNIVERSITY OF DUBLIN.

AT the summer commencements in Trinity College on June 28th the following honorary degrees were conferred:

M.CH.—Professor Harvey Cushing of Harvard.
LITT.D.—Dr. S. G. Owen of Oxford.
M.D.—Sir Humphry Davy Rolleston, Regius Professor of Physic at Cambridge.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—S. A. Carr, F. G. Hardaker, S. Jenkinson, H. I. Jones, T. C. Lansdale, H. S. Littlepage, S. K. Rigg.
MEDICINE.—S. A. Carr, R. P. Charles, T. C. Lansdale, H. S. Littlepage, D. D. Stidston, N. W. Wood.
FORENSIC MEDICINE.—G. Furniss, K. Girgis, G. L. McDermott, R. C. Pratt, S. Slotar, S. le R. Switzer.
MIDWIFERY.—K. E. Clarke, G. E. Furniss, H. J. Harcourt, G. C. Rhys-Jones, I. O. B. Shirley.

The diploma of the Society has been granted to S. Jenkinson, H. S. Littlepage, R. C. Pratt, S. K. Rigg, D. D. Stidston, S. le R. Switzer, and N. W. Wood.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons has this week gone into Committee on the Finance Act. Estimates for the Ministry of Health and other departments have also been discussed. At the conclusion of the Report stage of the Trade Disputes and Trade Unions Bill, on June 22nd, the House of Commons accepted without debate an amendment moved by the Attorney-General, which added to the definition of a strike the words "in any trade or industry." This amendment, it is considered, will remove the difficulty involved in the discrepancy between the terms of Clause 1 and the definition clause as originally submitted to Parliament.

Scottish Midwives and Maternity Homes Bill Amended and Passed.

On June 24th the House of Commons passed the Midwives and Maternity Homes (Scotland) Bill through Report and Third Reading. On the Report stage Mr. Barclay-Harvey, who had charge of the bill, moved an important new clause as follows:

> *Local supervising authorities to provide midwives in certain cases.*—Where in any district there are not in operation arrangements made by the local authority for attending to the health of expectant mothers and nursing mothers, and of children under 5 years of age, in accordance with Section 3 of the Notification of Births (Extension) Act, 1915, the local supervising authority shall, upon receiving reasonable notice, provide the services of a midwife or a duly qualified medical practitioner for the purpose of attending a woman in childbirth, and the provisions of Subsection (4) of Section 22 of the principal Act shall apply for the purpose of the local supervising authority recovering such fee in respect of the aforesaid services as may be determined according to a scale fixed by the Scottish Board of Health as they apply to the fee paid to a registered medical practitioner called in in the case of an emergency.

Mr. Barclay-Harvey said the clause was designed to meet an objection, urged in Committee on the bill, that nothing was being done to help poor people to get maternity treatment. He believed it would now be possible to give this in all necessary cases. Dr. Drummond Shiels seconded the new clause, and it was added to the bill.

Mr. Barclay-Harvey moved to amend Clause 1 of the bill by adding a safeguard to the provision which allows medical students and persons studying to become certified midwives to attend women in childbirth. The safeguard was that the attendance of the student must be in accordance with the provisions regulating the course of study of midwifery as recognized by the General Medical Council, or the rules relating to the training of midwives made by the Central Midwives Board for Scotland. Mr. Westwood, in seconding, said that the clause as proposed to be amended had been accepted by all parties after long negotiations. The amendment was inserted in the bill. Clause 9—which deals with the cancellation of the registration of a maternity home—with the addition, as a ground for cancellation, of "the appointment at any time after the commencement of this Act of a person who is not either a qualified nurse or a certified midwife to superintend the nursing of the patients in the home," was accepted, and the Third Reading of the bill was moved. Mr. W. Adamson, for the Labour party, said the points raised by that party in Committee had been met. Mr. Macpherson asked the promoters of the bill to reconsider, when it was before the House of Lords, the prohibition against the attendance by unauthorized persons on women in childbed. He hoped the Lord Advocate would secure that women in remote country districts who came to the assistance of a neighbour should not be called to court to account for their conduct. Dr. Shiels said this point had been fully considered in Committee, and amendments had been inserted to meet the difficulties which might arise in Highland districts. The Lord Advocate said a neighbour could only be called to account in court for giving help if the Procurator Fiscal decided that there was to be a prosecution. That official would never dream of bringing a prosecution where a little friendly help had been given. The bill was then read a third time without a division.

On June 22nd Sir John Gilmour announced that he had come to the opinion that there was a need for further trained women in midwifery in Scotland, and had arranged to offer a training grant, not exceeding £20 per head, for nurses who had taken a full nursing training to the satisfaction of the Scottish Board of Health, and were now prepared to take the Central Midwives Board qualification, and undertake thereafter to give two years' service in Scotland. The total grant for the current financial year was limited to £2,000.

Compensation for Disturbance: Doctors' Houses.

During consideration of the Landlord and Tenant (No. 2) Bill in Grand Committee Sir Richard Luce moved a drafting amendment which, he said, was designed to make the bill (which proposes to give leaseholders compensation for goodwill and improvements, or else an extension of their lease) apply to professional as well as to trade or business premises. He spoke particularly of the advantage of extending the bill to the medical profession and dentists. Sir Gerald Hohler had said there was no goodwill in a doctor's premises. It was true that a Harley Street physician or surgeon could not create goodwill by living in a particular house. The goodwill applied to the whole street, but that was not true in the case of a doctor in a small town. By his occupation of a house he increased its value, and brought to the site a goodwill for which he was entitled to compensation. The same observations applied also to the case of a dentist. It frequently happened that a doctor who took a house was obliged to improve it to meet the needs of his profession. A doctor's house should have a garage, and in view of what was required under the National Health Insurance Act a doctor might be compelled to improve his surgery accommodation. If he was forced to do that at his own expense he was entitled to compensation when he left the house, because in all probability it would be taken by another doctor, for whom it would have a special value in view of the improvements which had been made. Captain Hacking, who was in charge of the bill for the Home Office, said that as it stood premises were not to be deemed to be used for carrying on a trade or business by reason of their being used for carrying on any profession. He was afraid that he could not agree with the arguments of Sir Richard Luce. He himself did not go to a doctor in Harley Street because he was in that street. He required to know something more of him

than that. He did not think that a doctor or a dentist could leave goodwill behind. His own doctor had moved from one part of London to another, and Captain Hacking had followed him to his new address because he liked him and had faith in him. The Government was determined not to extend the bill to the medical profession, and he declined to accept the amendment.

Sir William Perring said that in industrial areas many dentists carried on business in rooms over business premises. If the landlord refused to renew the tenancy of such a dentist and another took his place working people would go to the successor. They went to the place where they had always gone because they knew it was a dentist's, though they might possibly not recall the name. Mr. Withers said the house next door to a county court was often occupied by a solicitor, and there really was goodwill in such a case. A doctor's house at certain crossroads on the Brighton road might have a valuable goodwill. Sir Richard Luce asked for an answer about the improvements made to premises by professional men. The chairman, Mr. William Nicholson, said the question of improvements should be raised on Clause 12. Sir Richard Luce's amendment was then negatived.

"Patent Medicine" Duty.

During the debate on the Finance Bill, in Committee of the House of Commons, on June 29th, Clause 2, which proposes to make permanent the additional excise duty imposed on "patent medicines" by the Finance (No. 2) Act of 1915, was discussed. Sir R. Hamilton, who moved that the duty should be extended only to August 1st, 1928, said this duty was doubled in 1915 as a purely war measure, but the Chancellor of the Exchequer now proposed to keep that double duty for all time, and not bring it up for annual review, as the amendment suggested.

Mr. McNeill said that this was not a tax that fell in any true and wide sense on medicine as understood to-day, because there was an exemption provision under which anything that came within the category of a regular medicine recommended by a doctor escaped the tax. This very old duty was an anomalous one in many respects, and, if an ideal fiscal system were being devised, it was very likely that this particular duty would not find a place. But it had, in fact, been taken by the public and the trade as unobjectionable. The only question raised by the amendment was whether the additional duty, which was put on during the war, should be on a permanent basis or not. The original tax was on a permanent basis, and it would be an absurdity to have the other half on an annual basis.

Mr. Harris argued that to say that the words of the Act of 1812, which governed the imposition of the duty, were suitable for the purpose was to stretch the imagination. That Act contained four pages of patent medicines advertised as taxable, but not one in ten of those articles could be bought to-day in any chemist's or grocer's shop in the country. Before the tax was made permanent the Committee should be quite clear that the words governing its imposition were on sound principles and intelligible to the public. The words in the Act of 1812 were out of date. He asked the Financial Secretary to the Treasury to reconsider the whole matter by next year, and to redraft the governing words.

Commander C. Williams said he was not at all sure that almost as many people were not injured by drinking medicines as by drinking other beverages. He hoped that in framing next year's budget the Chancellor of the Exchequer would consider the possibility of lowering the duty on British medicines and raising it on foreign medicines.

Mr. E. Hilton Young said that if a small fancy tax was not bad in itself, that might be a very good reason for not taking it off. No doubt very large profits were made by the vendors of patent medicines, mainly through the credulity and ignorance of their fellow-countrymen. If a patent medicine was sold which contained nothing that was not in the ordinary *Pharmacopoeia*, then the unfortunate purchaser would be paying ten times more than the article was worth. In that case it was just that the vendor should make some contribution to the revenue. If there were some special knowledge or secret of manufacture contained in the article sold, it was in the public interest that that secret knowledge should be at the general disposal of the whole medical profession. In the event of that not being done, it was right that the vendor should pay for his retention of useful knowledge from the public benefit.

The amendment was rejected by 249 votes to 125.

Mental Deficiency.

With Sir Richard Barnett as chairman, a Grand Committee of the House of Commons sat on June 28th to consider the Mental Deficiency Bill. On Clause 1, Section (*d*), defining the cases of moral defectiveness to which the bill should apply, Colonel Wedgwood moved to omit the inclusion of persons requiring care, supervision, and control "for their own protection." He asked whether the Committee wished to bring under the Act and render liable to life-long imprisonment feeble-minded girls who were walking the streets, but who, except in moral character, were not abnormal. Sir K. Wood said it was a mistake to assume that under the bill mental or moral defectives would be locked up for life. Ample opportunity would be given for magistrates to revise the committals to institutions. The amendment was negatived. Mr. Rhys Davies said that the Labour party did not wish to obstruct the bill, but they felt that a novel feature was being introduced by bringing in the words "moral defectives," which was not in the Act of 1913. It seemed to him a terrible thing that for one moral offence a boy of 15 might be detained for life or even for five or ten years. Sir K. Wood said other cases beside encephalitis should be protected in institutions in their own interest as well as in the interests of the community as a whole. The amendment moved by Mr. Charleton to Section (*d*) of Clause 1 (mental defectiveness coupled with vicious or criminal propensities and requiring care and control) would confine that section to encephalitis cases. Mr. Charleton withdrew his amendment. Mr. Rhys Davies remarked that they understood the bill was primarily introduced to deal with cases of encephalitis. Clause 1 was then added to the bill, and Clauses 3 to 5, making amendments in the principal Act, were carried without amendment or debate. A technical amendment was made in Clause 6 and the other clauses were passed. Sir K. Wood then moved a new clause to provide that when a person charged with a crime and sent to an institution of mental defectives is found in fact not to be mentally defective, he or she may be detained pending trial in a criminal court. He said that at present if a culprit were found on re-diagnosis not to be mentally deficient after committal to an institution, he had to be released. The new clause provided that such a person could be removed to a prison or to such other place as the Home Secretary might direct. The new clause was added to the bill, as also was a clause authorizing local authorities to administer the bill jointly. Mr. Geoffrey Ellis moved an amendment dealing with the domicile of mental defectives. This also was accepted, Sir K. Wood pointing out that a similar provision had been made in the case of destitute blind persons. Dr. Fremantle proposed to move a similar amendment on behalf of the London County Council. Sir K. Wood suggested that Dr. Fremantle should consult with him privately and move his amendment during the Report stage. Dr. Fremantle agreed to do this. The Committee stage then concluded.

Ministry of Health.

During the discussion in Committee, on June 27th, of the salary and expenses of the Ministry of Health, Mr. Groves moved a reduction on the vote of £100 to call attention to the administration of the West Ham guardians. He said that the infantile mortality had risen since the nominated guardians had been in office. In 1924 the infantile mortality rate was 73 per 1,000; in 1925 it was 65.9; in October, 1926, it went up to 82.4; and in November, 1926, it was 62.5. In all those cases the percentage was below the figures for the great towns of the country. In January of this year the death rate was up to 100.4; in February it was 101; in March 104; and in April 104. In each instance these figures were above those of the great towns.

Miss Lawrence said that the present board of guardians in West Ham had cut down the maximum amount of relief for a single person to 11s. a week. How was it possible for an old person to live on the balance, after paying 4s. 6d. or 5s. a week for rent? The guardians claimed to have saved about £15,000 in salaries. They had done so, partly, by making the nurses in the workhouse infirmary work longer hours. Their hours had been increased from 48—which prevailed in all good hospitals—to 56. That was a cruel proceeding, as the work of the nurses in this infirmary was particularly heavy and dispiriting. They had not got a really free day now. They had the worst venereal and cancer cases in London to deal with. Another result of the board's policy was indecent and unhealthy overcrowding. Since the relief had been cut down people had been sub-letting one of their rooms to lodgers. On every humane ground the West Ham guardians were to be condemned. The debate was continued by other speakers, and among the subjects raised was the administration of the Blind Persons Act. Sir K. Wood, in his reply, said that considerable progress was being made in this respect. One test of the work was provided by the assistance afforded both by local authorities and the State. In 1921-22 local authorities were only contributing £14,600 in that respect—whilst this year it was estimated that they would be spending not less than £173,828. The contributions from the State in 1921 amounted to £69,886, whilst this year the estimate was £113,000. He was glad to say that there had been no reduction in the assistance given by voluntary sources. In 1921-23 the total income of the 130 voluntary agencies to which grants were given was £378,535, and in 1925-26 it had risen to £420,463. He thought that it would be a great mistake to rely solely on the State. (Cheers.) As regarded the position of affairs in West Ham the period of twelve months for which the new guardians were appointed expired on July 18th next. So far from being dissatisfied, as some members had suggested, with the administration of the new board of guardians, the Minister and he thought that the great majority in the House and in West Ham took the view that these new guardians had carried out their work with great success, with great benefit to the district, and without doing any harm to a single deserving person. (Labour laughter.) Holding that view the Minister had taken the necessary steps to continue the appointed guardians for a further period of six months, which was the maximum period of extension allowed by the Default Act.

The motion for the reduction of the vote was defeated.

Small-pox and Vaccination.

On June 27th Sir K. Wood, replying to Mr. Groves in regard to the case of a woman from King Henry's Road, Hampstead, who died of small-pox, said that the Minister of Health was informed that the woman, who was 40 years of age, was said by her mother to have been unsuccessfully vaccinated in infancy. She was not revaccinated at the age of 11, as had been stated, her history in that respect having been confused with that of her sister. The source of infection had not been traced.

Lord E. Percy told Mr. Groves, on June 27th, that his attention had been called to the action of the Newport Education Authority in excluding from the Newport secondary school a girl, aged 15, on the ground that she was unvaccinated. The authority had acted on the advice of the school medical officer acting in conjunction with the borough medical officer of health. Small-pox was prevalent in the area outside the borough. The authority was prepared to readmit her to school provided that her parents were willing to allow her to live within the borough so long as the epidemic continued. In those circumstances he did not think that he would be justified in interfering with the action taken by the authority on the recommendation of their competent medical advisers.

Mr. Lansbury asked whether this action did not override the Act of Parliament which enabled the parents of a child to decide whether or not it should be vaccinated.

Lord E. Percy replied that it was entirely open to a parent to decide whether a child should be vaccinated; but the law did not force any other parent, or those responsible for the children of other parents, to expose other children to risk.

Captain Hacking, replying, on June 27th, to Mr. Groves, who asked if his attention had been drawn to the refusal of certain London magistrates to take statutory declarations under the Vaccination Act, 1907, said that in the case of metropolitan police magistrates two complaints of the nature referred to had been made to the Home Secretary within the last year. In both instances he found on inquiry that the facts were inaccurately represented, and that there had been no refusal on the part of the magistrate. Complaints of the conduct of individual justices of the peace other than stipendiary magistrates were a matter for the Lord Chancellor rather than for his department.

Bills.

On June 24th the Protection of Animals (Amendment) Bill, dealing with the hunting of certain animals, came before the House of Commons on report, but was talked out.

On June 23rd Sir Robert Gower presented a Dogs and Cats Bill, "to facilitate the recovery of lost dogs and cats," and it was formally read a first time. Among members backing it is Dr. Watts.

In the House of Lords on June 28th, the Midwives and Maternity Homes (Scotland) Bill was read the first time.

Medical Inspectors of Mines.—On June 29th Colonel Lane-Fox told Mr. Lee that the duties of a medical inspector to the Secretary of Mines would be to advise the present inspectorate on the health problems of the mining and quarrying industries, to assist in applying the health regulations effectively and in improving them, and to ensure that so far as practicable the results of medical research were applied to mines and quarries. In making the appointment, due weight would be given to the spread of miners' nystagmus, and to the varying theories held by medical men as to the causes of and remedies for the disease.

Alleged Accidental Poisoning.—On June 28th Sir K. Wood stated that the Ministry of Health had asked to be furnished with a report of the coroner's inquest (which was adjourned until June 27) into the deaths of Sarah Ann Edgerton and Elizabeth Fagent, at the Guildford Infirmary, after they were given medicine supposed to be liquorice powder. The Minister would give the matter careful consideration when this report had been received.

British Casualties in China.—Sir L. Worthington-Evans, replying on June 28th to Sir F. Hall, said that of the total troops now in China, one soldier had been killed, two officers and nine other ranks had been wounded, and nine other ranks had died as a result of illness or accidents. The average weekly number in hospital during the four weeks ended June 17th was 22 officers and 895 other ranks. Lieut.-Commander Kenworthy asked if the figure of 900 officers and men in hospital was not abnormally high. Sir L. Worthington-Evans replied that, unfortunately, it was not. The medical officers were very satisfied with the figures and the percentage was quite good.

Deaths in Childbirth.—In providing Sir Walter de Frece with statistics of the deaths of women in childbirth from 1917 to 1926, Mr. Chamberlain said that the number of such deaths afforded no indication of the trend of maternal mortality during the last ten years, in consequence of the abnormal variations in the number of births during that period. Stated as a proportion per 1,000 births registered, the rate of deaths of women classed as due to pregnancy and childbearing was 3.89 in 1917 and 4.12 in 1926.

Mentally Defective Children.—The President of the Board of Education stated, in reply to a question, that the Departmental Committee on Mentally Defective Children had not called witnesses; it hoped to report early next year. There appeared to be no occasion to ask them to consider making an interim report. Local education authorities were free to consult with the Board on any project for special schools for mentally defective children. He did not propose to make any special statement on the matter. Mr. Morrison suggested that a considerable number of local authorities had submitted plans for special schools for mentally defective children; as these had not met with the approval of the Board they were in some doubt on the matter. The Minister said that after the communications these authorities had had with the Boar they could not be in any doubt at all.

Harnett v. Fisher.—In a reply to Mr. Pethick-Lawrence, on June 23rd, Mr. Chamberlain said his attention had been drawn to the judgement of the House of Lords in the case of Harnett *v.* Fisher. He had nothing to say on the issue of this case beyond what he had said on May 3rd, 1926. Nothing could be done in the matter without legislation.

National Health Insurance.—The Minister of Health has not yet received from the Consultative Council any views on the recommendation that National Health Insurance benefit should be extended to include a consultant and specialist medical service. He has received a report of the inquiry by the Medical Service Subcommittee of the Durham County Insurance Committee into allegations of lax certification by doctors in the eastern part of that county during 1926. In the absence of a specific recommendation by the Insurance Committee he is unable to take action.

Notes in Brief.

At present twenty-six nursery schools are recognized by the Board of Education, of which eleven are provided by local authorities.

Lieut.-Colonel Headlam, on June 27th, told Sir B. Falle that during 1926 (January 1st to December 31st) 1,725 naval ratings were invalided. In the same period the number invalided for tuberculosis was 197. The figures for nephritis and other kidney diseases and bladder troubles would not be available for some months.

The Home Secretary thinks it undesirable to make public the instructions to prison governors regarding the information to be given at inquests following executions.

About 175 local authorities provide for the orthopaedic treatment of school children of school age in their areas. Practically all work with voluntary agencies. For children below school age 35 counties, 36 county boroughs, and 58 other boroughs or urban districts in England and Wales have arranged for orthopaedic treatment, all but one in conjunction with voluntary agencies.

Mr. Chamberlain does not know of any district where public health is endangered through the water supply being drawn from lead-bearing strata.

Mr. Chamberlain has not received any reports that cosmetics now sold may cause definite injury to health when applied to the skin, and does not think that action on his part is required.

No special measures are thought necessary to prevent the surface contamination of ice when carted through the streets.

For some time no condensed milk of foreign origin has been bought for the British Army. Condensed milk bought by the Admiralty is made in England.

The Services.

HONORARY APPOINTMENTS TO HIS MAJESTY.

SURGEON CAPTAIN A. R. BRAILEY, M.C., V.D., of the London Division, Royal Naval Volunteer Reserve, has been appointed an honorary surgeon to the King, and Colonel C. R. Bakhle, I.M.S., is appointed honorary physician to His Majesty in succession to Colonel J. H. McDonald, I.M.S., retired.

COLONIAL MEDICAL SERVICES.

THE Secretary of State for the Colonies has approved the creation of the following appointments, with effect from February 19th, 1927, inclusive: senior health officer, Perak; senior health officer, Selangor and Pahang; senior health officer, Negri Sembilan (F.M.S.).

The Secretary of State for the Colonies has approved the alteration of the title of the appointment of senior health officer, Federated Malay States, to chief health officer, F.M.S., with effect from February 19th, 1927, inclusive.

Medical News.

THE next annual meeting of the Royal Medico-Psychological Association will be held in Edinburgh under the presidency of Dr. Hamilton C. Marr, one of the Medical Commissioners of the Board of Control in Scotland. The business meeting will occupy the greater part of Monday, July 18th, and the annual meeting will commence at the Royal College of Physicians at 10 a.m. on Tuesday, July 19th. The presidential address will be delivered on that day; its subject is Dante and Rabelais: an Account of Two Mediaeval Physicians, with a summary of their Philosophy. Thereafter the proceedings of the Medico-Psychological Association will be conducted in association with sections of the British Medical Association, which is holding its annual meeting in Edinburgh during the same week. On Wednesday, July 20th, there will be, as already announced, a discussion conjointly with the Section of Mental Diseases of the British Medical Association, on chronic sepsis as a cause of mental disorder; it will be opened by Dr. William Hunter. On the following day a discussion on epidemic encephalitis will be held conjointly with the Sections of Mental Diseases and of

Neurology of the British Medical Association, it will be opened, as already announced, by Dr. Ivy Mackenzie. Another joint discussion with the Section of Mental Diseases will be opened on Friday, July 22nd, at 10.30 a.m., by Professor George M. Robertson. Full particulars will be found in the provisional programme of the Annual Meeting of the British Medical Association published in the SUPPLEMENT last week.

IN connexion with the Annual Meeting of the British Medical Association to be held in Edinburgh this month it may be well to remind members proposing to attend that the Hotels and Lodgings Committee has taken over all the available rooms in the city. Dr. Drever, the Scottish Medical Secretary, 6, Drumsheugh Gardens, Edinburgh, has undertaken the work of allocation, and members requiring rooms should communicate with him without delay. Very few single rooms are available in hotels, but there are some in boarding houses and hostels, and there are plenty of double rooms. Members proposing to attend the meeting who have made their own arrangements for accommodation are requested to notify Dr. Drever.

A SERIES of visits to historic buildings has been arranged in aid of King Edward's Hospital Fund for London. The object is twofold; to provide an opportunity for those who take part in them of seeing some of the most famous buildings in London under exceptionally favourable conditions, and to draw attention to the work of the Fund on behalf of the voluntary hospitals in its area. Well known archaeologists will act as guides, and facilities will be given by the authorities for visiting places not usually accessible to the public. Westminster Abbey will be visited on July 7th and 21st at 5.30 p.m.; the Palace of Westminster on July 13th at 11 a.m.; Hampton Court Palace on July 19th at 3 p.m.; the Tower of London on August 3rd and 24th at 12.30 p.m.; and Kensington Palace on August 17th at 3 p.m. Applications for the programme and for tickets of admission (10s. for each visit) should be made to the Secretary, King Edward's Hospital Fund, 7, Walbrook, E.C.4.

AT the annual meeting of the Royal Society for the Prevention of Cruelty to Animals last week a storm arose about the action of the Council in withdrawing the petition to Parliament against the Dogs' Protection Bill. The chairman, Lord Danesfort, was frequently interrupted, and some fiery speeches were made. Eventually a resolution was adopted by a large majority condemning the action of the Council.

THE new pathological laboratory and research institute at the City of London Hospital for Diseases of the Heart and Lungs, Victoria Park (the gift of the Prudential Assurance Company), will be opened on Tuesday, July 19th, at 3 p.m., by the Rt. Hon. Neville Chamberlain, M.P., Minister of Health.

THE Fellowship of Medicine and Post-Graduate Medical Association announces two demonstrations for July 5th, one by Dr. Barty King at the Royal Chest Hospital at 2 p.m., and the other by Dr. Dan McKenzie at the Central London Throat, Nose and Ear Hospital at 2.30. Those desirous of attending the latter are asked to notify the secretary of the hospital—telephone, Museum 1539. On July 8th, at 5 p.m., Mr. M. L. Hine will give a lecture-demonstration on iritis and cyclitis at the Royal Westminster Ophthalmic Hospital. All these demonstrations are free to members of the medical profession. The Prince of Wales's General Hospital, North-East London Post-Graduate College, Tottenham, will undertake an all-day vacation course in general medicine, surgery, and the specialties from July 11th for two weeks. St. Mark's Hospital will give a special course for one week, beginning July 11th, occupying six afternoons and three mornings. Two part-time courses are announced—one in neurology at the West End Hospital for Nervous Diseases, from July 4th to 30th, and the other in infectious fevers at the Park Hospital, S.E. Copies of all syllabuses are obtainable from the Fellowship of Medicine at 1, Wimpole Street, W.1. A general course of work is also provided at the associated hospitals, for which a comprehensive ticket is issued and a separate programme published. The Fellowship *Journal* will be sent also on request.

THE National Union of Students of the Universities and University Colleges of England and Wales has arranged a medical tour to Germany and Switzerland, starting on July 9th. It will last nineteen days, and will include visits to spas, clinics, hospitals, and sanatoriums in the Rhineland and Switzerland. The places visited will include Aachen, the children's clinics at Düsseldorf, the Medical School at Bonn, Bad Homburg, the Kurhaus Sanatoriums for heart treatment at Nauheim, Baden-Baden, Bâle, Zürich, the centre for the treatment of tuberculosis and research laboratory at Davos, and Berne. The mornings will be devoted to medical visits and the afternoons to trips to picturesque places.

THE annual oration of the St. John's Hospital Dermatological Society was delivered on June 22nd by Dr. H. Haxthausen, first assistant in the Skin Department of the State Hospital, Copenhagen, who chose as his subject "Streptococcal pityriasis." At its conclusion the president, Dr. Wilfred Fox, proposed a vote of thanks to the orator, in which he was joined by Drs. Whitfield, Sequeira, MacCormac, Dore, Knyvett Gordon, and Dowling, all of whom expressed their great interest in the paper. The annual general meeting of the society was then held. After the reports of the honorary treasurer and honorary secretary had been submitted, officers were elected for the coming session, and the new rules for the society, drawn up by the council, were submitted and passed. The annual dinner was held later at the Café Royal, when Drs. Haxthausen, Sequeira, Drake, Gray, Graham Little, MacCormac, O'Donovan, and Whitfield, and Mr. Arnaudin were the official guests of the society.

THE KING has confirmed the appointment of Dr. Noel L. Clarke to be a nominated unofficial member of the Legislative Council of the Straits Settlement.

THE fourth centenary of Marburg University will be celebrated on July 30th and 31st.

THE International Congress of Urology will be held at Brussels from August 3rd to 6th under the presidency of Professor Verhoogen, when the following subjects will be discussed: (1) comparative value of various examinations of the blood and urine in urinary surgery, introduced by Chabanier of Paris, Kojak of Belgrade, and Quinby of Boston; (2) treatment of tumours of the bladder by physical agents, introduced by Beer of New York, Frysaman of Warsaw, and Heitz-Boyer of Paris; (3) treatment of genital tuberculosis, introduced by Barney of Boston, Gaberini of Bologna, and Kenneth M. Walker of London. Further information can be obtained from the general secretary, Dr. Pasteau, 13, Avenue de Villars, Paris VII^e.

THE Faculty of Medicine of Geneva has organized a vacation course from September 5th to the 30th for last-year students, comprising clinical medicine, medical jurisprudence, surgery of industrial accidents, and professional hygiene. Excursions will be made to climatological and bacteriological stations. The fee is 80 francs. Further information can be obtained from the Secretary of the University, Geneva.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

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FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

ARTIFICIAL SILK AND ULTRA-VIOLET RAYS.

"U. V. R." writes: I have heard it stated that artificial silk permits the passage of the ultra-violet rays. There are now many varieties of artificial silk; it is prepared in many different colours, and also made up with wool, cotton, etc. I should be glad to know what make of artificial silk is most permeable to the ultra-violet rays, and whether coloured fabrics and those containing an admixture of cotton or wool offer more resistance to their passage than white art silk.

OXALURIA.

"PERPLEXED" asks for advice in the treatment of a case of oxaluria in a girl of 18, who has attacks every two or three weeks. She has been twice in hospital, and cystoscope, *x* rays, and passage of ureteral catheters, etc., revealed no stone. Urine negative, except large quantities of oxalates. Dieting, acid sodium phosphate, dilute hydrochloric acid, and alkalies have all been tried without effect.

FLOWERS IN SICK ROOMS.

"ABALONE" asks whether there is any scientific ground for the belief, which seems to be widespread amongst nurses, that either cut flowers or flowers in pots are injurious in sick rooms at night, and should be removed at sundown. Is it not a fact that, like other forms of vegetation, they tend to absorb CO_2 and excrete oxygen, in both light and darkness, and is there any question of injurious exhalation from flowers?

RECURRENT EPISTAXIS.

DR. ARNOLD FERGUSON (Jersey) writes in reply to Dr. Steele's query regarding the treatment of his case of epistaxis: I would advise him to give his little patient an injection of anti-diphtheritic serum. This immensely shortens the period of coagulation. I have always used it with the most happy results in similar cases.

FACIAL ACNE.

DR. ELIZABETH M. ANDERSON (London) writes in reply to "F.R.C.P." (JOURNAL, June 25th, p. 1172): I have treated a large number of cases of facial acne by means of ultra-violet light, and have not failed to get a favourable response in any case. The inquirer's technique may possibly be at fault. I should advise perseverance with ultra-violet rays, giving brisk doses, and not repeating until the reaction from the preceding doses has disappeared. Intensive dosage to each pustule may best be administered with a "Kromayer" lamp and quartz rod. Internal treatment with fresh yeast and calcium sulphide is advisable.

DR. JAMES HASSON (London) writes in reply to "F.R.C.P.": The best result is obtained with the following treatment: (1) If the form of acne is "rosacea," *x*-ray therapy will secure a rapid and considerable improvement. From half to one pastille dose at each sitting, and from three to four sittings at intervals of five to six weeks. Vaccines are absolutely useless in this form of acne, but as the majority of these patients are "hypochlorhydric," it will be necessary to recommend the ingestion of 3 grams of HCl a day, diluted in about a litre of water. One glass of the solution after each meal. (2) If the form of acne is "vulgaris," *x*-ray treatment is specially suitable in those cases which constantly recur and defy every other form of treatment; frequently one application is sufficient to cause disappearance of the eruption, but old acne scars are not influenced. Here, again, the HCl solution will be very useful too. Large nodules must be punctured and washed by Veyrrières's method, called "la douche filiforme." This is a very intelligent method of "curetting," and is absolutely harmless.

DR. E. CURNOW PLUMMER (London) writes: I have had good results in obstinate cases from the local use of an antivirus (see BRITISH MEDICAL JOURNAL of June 4th, "Local immunization in sepsis"). The antivirus I have used is prepared by the Drug and Chemical Corporation, Ltd., 204–6, Great Portland Street, W.1.

DR. A. HAWKYARD (Leeds) writes: I have had good results by using Dr. Crowe's (Harrogate) S.A.F. It is an antivirus and is applied externally. Reynolds and Branson, Ltd., Leeds, are the agents.

ISSUE OF NEAR KINDRED.

"SCRUTATOR" asks for references to authenticated instances in modern times of a child born through incestuous union between a father and his own daughter. His search through books on medical jurisprudence, etc., has been fruitless.

*** It is known that there is no reason why the actual birth of a child or development of pregnancy should not result from incestuous union between a father and his daughter; consequently the point is of little forensic interest, and rarely referred to in reports of cases. The following are cases in which a child was born or a note that pregnancy resulted was made:—(1) R. *v.* McColl, Glasgow Circuit Court, 1897: Glaister, *Textbook of Forensic Medicine*, p. 493, states that the daughter was pregnant. (2) Krafft-Ebing, *Psychopathia Sexualis*, Case 195, reports that daughter was pregnant. (3) R. *v.* Maclean, December, 1924, High Court of Justiciary, Edinburgh: Daughter gave birth to living child, parentage of which was admitted by girl's father. Both convicted, and sentenced to two years' imprisonment and five years' penal servitude respectively. (4) R. *v.* Pinkman, August, 1926, High Court of Justiciary, Edinburgh: Girl of 16 gave birth to child, parentage of which was admitted by grandfather, who was convicted and sentenced.

TREATMENT OF VARICOSE VEINS BY INJECTION.

"J. F. E." asks for advice as to the anaesthetic to use with a 40 per cent. solution of sodium salicylate, in the treatment of varicose veins by injection; 2 c.cm. are given. Is novocain, 1/2 grain with each injection, to be recommended? Without an anaesthetic the injection has been followed by much pain and a tight feeling in the leg; the results have been excellent, a thrombus, 4 in. to 5 in. in length, being obtained, with complete obliteration of the vein. The pain passed off in about five days. With quinine bihydrochloride *my* results were not so good.

*** We are advised that no local anaesthesia should be used, and that 1 c.cm. of a 20 per cent. solution of sodium chloride should be injected into an inch length of a vein previously emptied, and kept so for about one minute after the injection. If local anaesthesia is used, 1/2 per cent. novocain solution has been advised.

INCOME TAX.

Assessment as Assistant.

"J. A." commenced his assistantship on May 10th, 1926, and received £183 6s. 8d. for the period to April 5th, 1927. He has been assessed accordingly, less apparently £15 as claimed for travelling expenses, the total duty payable being 10s.

*** The 10s. is correct, and should be paid as demanded. With regard to 1927–28, "J. A." is assessable on the income for that year, so far as employment is concerned, and the simplest course is to make a return on the basis that his present rate of remuneration will continue, and to apply for an adjustment if and when he joins his principal in partnership.

Motor Car Expenses.

"A. P." and his wife held appointments in respect of which they received travelling allowances, 4d. a mile and £100 per annum respectively. These allowances have proved insufficient to cover depreciation. Can any claim be made for an income tax allowance.

*** Depreciation as a specific allowance is not due in respect of the earnings of employment. The only deduction claimable is the amount expended wholly, exclusively, and necessarily in the performance of the duties of the office, or, in the actual circumstances, of the excess of that amount over the allowances received from the employing authority. If "A. P." can satisfy the local income tax authorities that there is such an excess he will, no doubt, receive the allowance, but as in effect he will be attacking the adequacy of the authority's grant, he is not perhaps likely to succeed.

"M. M." bought a 12-h.p. car in 1920 for £750, selling it for £138 in 1926, when he bought a 9-h.p. car for £225.

*** The actual *cost of replacement* is £225 − £138 = £87, and no more than that sum can be treated as a professional expense for income tax purposes. Apparently "M. M." did not claim depreciation allowance in respect of the old car, and on technical grounds there is in that case a possible objection to the grant of the deduction of the £87 at the same time as the depreciation allowance of 15 or 20 per cent. in respect of the £225—the cost of the new car. We advise "M. M." to make sure of the latter allowance and obtain the former if he can agree it with the local official.

LETTERS, NOTES, ETC.

MENSTRUATION DURING PREGNANCY.

DR. I. CHESSER (Cinderford, Glos) writes: In September, 1926, a girl, aged 17, became pregnant. On this date and during the succeeding three months menstruation ceased, but in January, 1927, it commenced and appeared again each month until June 16th, when she gave birth to a full-time female infant. All stages of labour were unattended by pain.

ZINC IONIZATION IN OTITIS MEDIA.

DR. W. E. CROSBIE (Liverpool) writes: In my article on "Zinc ionization in the treatment of suppurative otitis media" (BRITISH MEDICAL JOURNAL, May 21st, p. 918) I stated that the technique used was that described by Friel. I find that it differs in one point, as Dr. Friel uses a much weaker solution of zinc sulphate than that (2 per cent.) mentioned by me.

INFLAMMABLE EYE SHADES AND ULTRA-VIOLET LIGHT CLINICS.

DR. CHRISTINA BARROWMAN (Newcastle) desires to call attention to the danger of using celluloid shades for protecting the eyes of patients when under treatment by carbon arc lamps. She found such shades in use recently in a foreign clinic, and ascertained by experiment that they were highly inflammable, flaring instantaneously. With the quartz mercury lamp the danger would be absent; shades of a non-combustible material are cheap and easily obtained. She suggests that firms dealing with accessories for actinotherapy would be well advised only to supply non-inflammable eye shades.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 38, 39, 42, 43, and 44 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 7.

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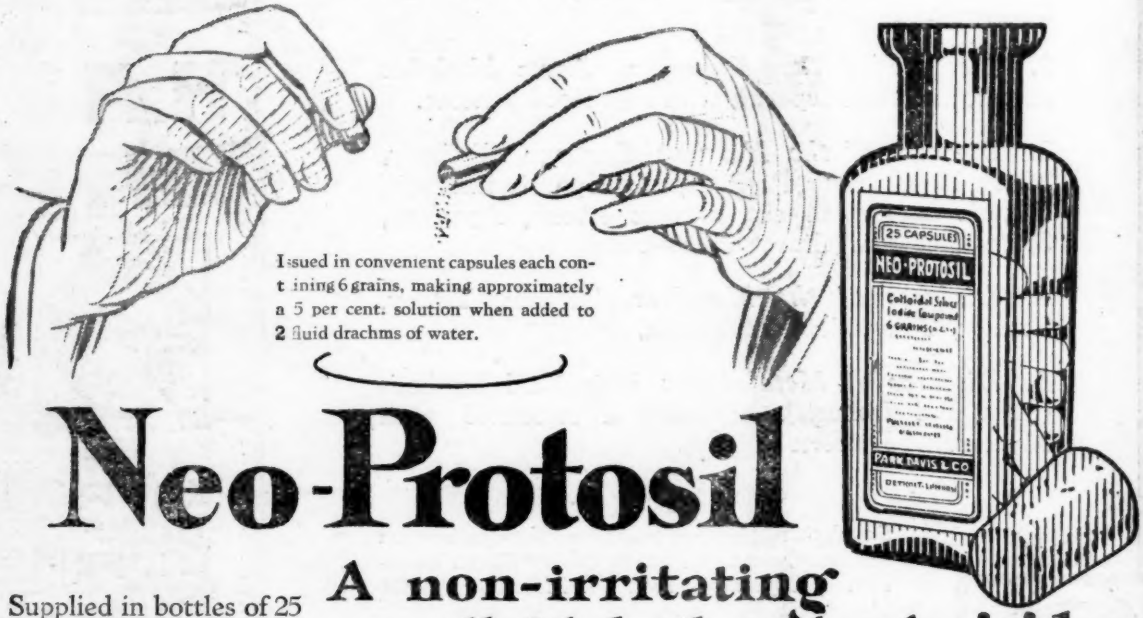

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